From:	s 22(1)(a)(ii) s 22(1)(a)(ii)	
Sent:	Thursday, 7 March 2024 5:51 PM	
То:	s 22(1)(a)(ii) (DFAT)	
Cc:	s 22(1)(a)(ii) s 22(1)(a)(ii) s 22(1)(a)(ii) s 22(1)(a)(ii)	
Subject:	[EXTERNAL] Re: EU Deforestation Regulation Global Map letter from Secretary to European Commission [SEC=OFFICIAL]	

CAUTION: This email originated from outside the organisation. Do not click links or open attachments unless you recognise the sender.

Dear^{s 22(1)(a)(ii)}

Thank you for your message. The letter has indeed been received and a reply is under finalisation. Apologies for the delay in getting this to you. I am looking forward to meeting the Ambassador on 26 March. Best regards \$ 22(1)(a)(ii)

On 6 Mar 2024, at 16:00, s 22(1)(a)(ii) wrote:

OFFICIAL

Dear ^{s 22(1)(a)(ii)}

Appreciating how busy you must be, I am gently enquiring to confirm if you had received the attached letter. As stated Australia is very keen to work with the JRC in contributing to the EU Deforestation Global Map.

I also note that my Ambassador s 22(1)(a)(ii) (Australian Embassy to Belgium and Luxembourg, Mission to NATO and the EU), will be having an introductory meeting with you on Tuesday, 26 March, with the opportunity to cover the broader intersects of JRC work and Australian interests.

Kind regards

s 22(1)(a)(ii)

Minister Counsellor, Agriculture s 22(1)(a)(ii)| s 22(1)(a)(ii)Australian Embassy to Belgium and LuxembourgMission to NATO and the EU

From: s 22(1)(a)(ii)Sent: Tuesday, February 20, 2024 7:04 PMTo: s 22(1)(a)(ii)Cc: s 22(1)(a)(ii)s 22(1)(a)(ii)s 22(1)(a)(ii)s 22(1)(a)(ii)

Subject: EU Deforestation Regulation Global Map letter from Secretary to European Commission [SEC=OFFICIAL]

OFFICIAL

Dear ^{s 22(1)(a)(ii)}

Please find attached a letter from Secretary s 22(1)(a)(ii) Department of Agriculture, Fisheries and Forestry, Australia, responding to the opportunity provided by the JRC to comment on the EU Deforestation Global Map. The department appreciates the opportunity and looks forward to working with the JRC to ensure the map is most accurately representing forest cover in Australia. My colleague, s 22(1)(a)(ii) Agriculture Counsellor to the Australian Mission EU, Brussels, s 22(1)(a)(ii) is able to assist with any ongoing engagement arrangements. Kind regards

LEX 33330

s 22(1)(a)(ii) Minister Counsellor, Agriculture s 22(1)(a)(ii) | s 22(1)(a)(ii) Australian Embassy to Belgium and Luxembourg Mission to NATO and the EU

s 22(1)(a)(ii)

Avenue des Arts 56 1000 Brussels

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Australian Government

Department of Agriculture, Fisheries and Forestry

> s 22(1)(a)(ii) secretary

February 2024

s 22(1)(a)(ii)

Director General Joint Research Centre European Commission Via email – s 22(1)(a)(ii)

Dears 22(1)(a)(ii)

The Australian Department of Agriculture, Fisheries and Forestry thanks the Joint Research Centre (JRC) of the European Commission (EC) for the opportunity to provide our comments, as outlined below, on the European Union observatory on deforestation and forest degradation version 1, released in December 2023.

The Australian Government is closely aligned with the European Union (EU) on the critical importance of forests, including for biodiversity and climate purposes. This is demonstrated by our extensive and increasing forest coverage and our signatory status to the Glasgow Leaders Declaration on Forests and Land Use, and the Forests and Climate Leaders' Partnership.

Australia would like to see the EU deforestation regulation ⁱ (EUDR) help deliver the objectives of these broader forest initiatives, whilst minimising the costs and complexities of compliance for exporters, which should be commensurate with risk.

To these ends, I am encouraged by the JRC's commentary to date, where you have noted that Forest Observatory reference maps required refinement and sought input from relevant parties. Further to this letter, I would like to request a meeting between the JRC and Australia's technical experts, to further discuss improving the accuracy of this important resource.

Noting that reference maps are designed to assist operators comply with the regulation, Australia is focused on ensuring these are accurate. The Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) has performed a preliminary investigation and made the following observations:

- a. The EU Global Forest Cover 2020 spatial dataset developed for the EUDR records 143.2 million hectares of forest for Australia.
- b. This total is greater than the 133.6 million hectares of forest identified in the *Forests* of Australia (2023) dataset using Australia's forest definition thresholds (height >2m, canopy >20%, no land use exclusions).
- c. We would expect that applying the EUDR/FAO definition of forest (height >5m, canopy >10%, land use exclusion) in Australia, the total area may be substantially less than 133.6 million hectares. Recent mapping involving our Commonwealth Scientific and Industrial Research Organisation (CSIRO) supports this.

T +61 2 6272 3933 F +61 2 6272 5161 Agriculture House 70 Northbourne Ave Canberra ACT 2600 GPO Box 858 Canberra ACT 2601 agriculture.gov.au ABN 34 190 894 983 d. Extensive (44% of Australia's total forest area as shown on the Forest observatory website) grazing land has not been removed from the EU 2020 forest dataset, despite it meeting the EUDR definition of agricultural land.

These differences reflect the relative complexities of global forest mapping and illustrate the importance of Australia's involvement in refining the EU map of our forests with the JRC. Australia uses long-established, locally-adapted definitions and procedures for mapping our forest extent and land use change and we wish to emphasise the importance of accommodating approaches adapted to local contexts and circumstances. However, we would be pleased to engage with the JRC and assist in improving the mapping against the universally applied EUDR definitions. In particular, we could provide useful information and data for the elements of height and agricultural use.

More broadly, I would like to take this opportunity to re-iterate Australia's request for the EC to complete our country risk assessment as soon as possible, as this has a direct bearing on the compliance impost. Australia provided a country submission to the Directorate-General for the Environment on 29 June 2023, supporting our claim to be assessed as low risk.

Similarly, the expeditious release of EC guidance documents on definitions remains a priority for Australia. This includes, for example, whether land already predominantly used for agricultural purposes will be considered as deforested if an area of the property meeting the EU definition of forest was cleared. This will also have a direct bearing on the Forest Observatory reference maps.

I look forward to your response, noting arrangements for a technical exchange with Australia can be facilitated by contactings 22(1)(a)(ii) Counsellor (Agriculture) Australian Mission to the EU, Brussels at s 22(1)(a)(ii) .

Yours sincerely



s 22(1)(a)(ii)

cc:s 22(1)(a)(ii)

Director, DG Environment

^{&#}x27; Regulation (EU) 2023/1115 on deforestation-free products



EUROPEAN COMMISSION JOINT RESEARCH CENTRE

The Director-General

Brussels JRC/^{s 22(1)(a)(ii)}

Dear Honourable Secretary s 22(1)(a)(ii)

Thank you for your letter of 21 February 2024 on the EU Observatory on Deforestation and Forest Degradation, referring in particular to the global forest cover map for the year 2020. We welcome your feedback on this map, which is a scientific product combining existing global data layers on the presence or absence of forests at 10-m spatial resolution.

We confirm that we apply the definitions set out in the deforestation-free supply chains Regulation (EU) 2023/1115 and by the FAO, and that we retain areas larger than 0.5 hectares. Preliminary assessments indicate an accuracy level of approximately 80% globally. A technical report describing the input data, methodology and first assessments, including observed shortcomings, will be released tentatively by the end of March 2024. In collaboration with scientific experts, the JRC will undertake a thorough accuracy assessment in the second quarter of 2024.

The JRC prepared the global forest cover map for the year 2020 as a tool to support the risk assessment by operators and traders. However, we would like to underline that the global forest cover map for the year 2020, publically available via the EU Observatory, has no legal status in the implementation of the deforestation-free supply chains Regulation. The map is not mandatory and there is no obligation to use our global forest cover map for 2020 or any other map to implement the Regulation. Moreover, the map is not exclusive and other maps can be used, especially national or regional maps with higher accuracy levels. Finally, results obtained by comparing geolocations with Global Forest Cover map 2020 are not legally binding. This means that a coincidence of a geolocation in a due diligence statement with forest in our global forest cover map for 2020 does not legally imply deforestation and *vice versa*.

We hope that this alleviates any concern that the forest extent mapped by the JRC has a direct bearing on the compliance with the deforestation-free supply chains Regulation. The JRC is not in charge of the country benchmarking exercise - we refer to DG Environment for clarifications concerning definitions of deforestation and forest degradation, and (ii) your request of 29 June 2023 to be assessed as a low risk country.

We appreciate your suggestion of holding a technical meeting with experts to gain a better understanding and improve accuracy levels in future versions of our global forest cover

Sent per e-mail to s 22(1)(a)(ii) Counsellor (Agriculture) Australian Mission to the EU, Brussels s 22(1)(a)(ii) map. I would propose that s 22(1)(a)(ii) contacts my s 22(1)(a)(ii) s 22(1)(a)(ii) JRC.D1 - Forest and Bioeconomy) to arrange for such an exchange.

The JRC actively seeks comments on this first draft (made publicly available on 7 December 2023) in order to release a revised map by December 2024, and the input of your services is most appreciated.

Yours sincerely,

s 22(1)(a)(ii)

c.c.:

s 22(1)(a)(ii) (Director JRC.D). (Director DG ENV.F), s 22(1)(a)(ii)

From:	ENV-DEFORESTATION@ec.europa.eu
Sent:	Tuesday, 26 March 2024 7:37 PM
То:	s 22(1)(a)(ii)
Subject:	[EXTERNAL] FW: EUDR: Additional Questions to Include in the FAQs
Attachments:	EU Deforestation Regulation - Additional Questions for FAQs - Australia.docx

CAUTION: This email originated from outside the organisation. Do not click links or open attachments unless you recognise the sender.

Dear s 22(1)(a)(ii)

Thank you for your message. Your questions will be addressed if appropriate in a further version of the FAQs.

Best regards,

The ENV DEFORESTATION Team

From: s 22(1)(a)(ii) Sent: Friday, March 22, 2024 2:52 PM To: ENV DEFORESTATION Cc: s 22(1)(a)(ii) ; s 22(1)(a)(ii) Dawr Brussels Subject: EUDR: Additional Questions to Include in the FAQs [SEC=OFFICIAL]

OFFICIAL

Dear DG Environment EUDR Team

Please find attached additional questions Australia would welcome you including in the updated version of the FAQs document.

We appreciate your consideration, and look forward to the release of the next FAQs.

Regards, ^{s 22(1)(a)(ii)}

s 22(1)(a)(ii) Counsellor | Agriculture, Fisheries & Forestry | Australian Mission to the EU T: s 22(1)(a)(ii) | M: s 22(1)(a)(ii)

Questions that should be included in next EUDR FAQ

Country Risk Rating:

- Will all countries be consulted during the process of applying the benchmarking methodology to their individual country/regions and prior to publication? Or only those countries which are categorized as high-risk?
 - [Suggested response: All countries will be consulted during the application of the benchmarking methodology to individual countries to ensure accurate information and risk categorization before the risk category is made public.]
- Can countries proactively provide information to the country-risk rating process prior to the publication of the methodology? If yes, what type of documentation would be useful? To whom should the information be sent?
 - [Suggested response: Once the methodology has been established, clear guidance will be provided regarding the type of information required as well as contact information to allow countries to submit evidence to support the assessment.]
- Who will make the decision on a country's risk level? Will it be European Commission officials? Or will it be the organization that wins the public tender for the "Support Contract for the Establishment of a Benchmarking System According to Article 29 of the Regulation on Deforestation-free Supply Chains"?

Will the due diligence obligations enter into force before all countries/regions are benchmarked?

Definitions:

- Does the EUDR definition of deforestation, definitively exclude clearing on a property predominantly under agricultural use, including for the rearing of livestock?

[Suggested response: Yes, including if the clearing is of an area that meets the EUDR definition of forest, as long as the property was predominantly under agricultural or urban use prior to the cut off date of 31 December 2020]

Assessment by Competent Authorities

- Where an operator provides an alternative map or evidence of deforestation free supply chains that conflicts with the EU forest observatory map, how will this be assessed by the Competent Authorities?
 - [Suggested response: where reputable evidence can be provided, the product will be assessed as compliant and allowed to be placed upon the single market]

Dispute Resolution & Substantiated Concerns:

- When a Member States Competent Authority makes a finding of non-compliance, will the authorities of the country of origin be notified?
 - [Suggested response: Yes. There will be a portal/notification process for third country governments in order for them to be able to see the details of each non-compliant situation.]
- Will there be a role for a third country authority when a finding of non-compliance is made?

- How will substantiated concerns be addressed, validated and resolved in a timely manner? This
 question is applicable both during the country benchmarking process and once the Regulation has
 been implemented as part of the due diligence process.
- How will disputes regarding alleged instances of non-compliance be addressed, validated and resolved in a timely way to minimize trade disruptions?
- What role will the Commission play in findings of non-compliance that are disputed and in addressing substantiated concerns? What role will the Commission play in ensuring consistency across Member States?
- Is there a time limit on how far back a product could be found to be non-compliant retroactively?
- How will Competent Authorities ensure that they minimize the risk of disputes stemming from the misinterpretation of potential deforestation in the context of forest products given that forests are always changing, that forests are sometimes cleared for reasons beyond agricultural conversion (e.g., fire break around a town) and that forest regeneration can take several years to show up on a map?

Forest Degradation:

- How will Competent Authorities assess and validate claims of forest degradation, given that there may be several years between when a product is placed on the market and the ability to accurately assess potential degradation?
- Forest degradation as defined by the EUDR is not necessarily readily identifiable on maps. What tools are Competent Authorities and operators recommended to use to identify and verify degradation as defined in the EUDR for compliance purposes? What guidance will be given to ensure consistency across Member States?
- Where will the burden of proof be in terms of determining compliance related to forest degradation?
- How will Competent Authorities ensure that they minimize the risk of disputes stemming from claims of potential forest degradation, given that forest degradation may not be readily identifiable on maps, and that regeneration takes several years to show up on a map and many years to reach maturity?
- How will the definition of forest degradation be applied to forests which are being regenerated due to fire and other natural disturbance, or to address a changing climate?
 - [Suggested response: The method of regeneration of forests that have been naturally disturbed is outside the scope of the EUDR].

Consistency Between Imported and Domestic Product:

- Imported products will require a 2-step process prior to being placed on the market (IT system and Customs), providing time to identify and evaluate high-risk products prior to their being placed on the EU market. Products produced domestically within the EU may be placed on the market immediately after being entered into the IT system. How will European products which are at risk of stemming from deforestation be identified and evaluated before they are placed on the EU market?
- How will the Commission ensure that processes are consistent across all its Member States?

Legality:

- What information/documentation is necessary to prove that relevant products were produced in accordance with the relevant legislation of the country of production?

How does the EU propose that highly mixed commodities, such as woodchips that are processed into paper products, be handled, considering that geolocations that may span many dozens of locations for any one product consignment? Will processes be operationalized to provide a test of reasonableness for due diligence efforts relating to highly complex product lines?

From:	s 22(1)(a)(ii) s 22(1)(a)(ii)
Sent:	Wednesday, 3 April 2024 5:14 PM
То:	s 22(1)(a)(ii)
Cc:	s 22(1)(a)(ii) s 22(1)(a)(ii) s 22(1)(a)(ii) (DFAT); s 22(1)(a)(ii) JRC- EOREST-ORSERVATORY@cc.currona.cur s $22(1)(a)(ii)$
Subject:	[EXTERNAL] Re: Meeting: Australia/JRC re EU Forest Observatory Map [SEC=OFFICIAL]

CAUTION: This email originated from outside the organisation. Do not click links or open attachments unless you recognise the sender.

Dear s 22(1)(a)(ii)

The report:

European Commission Joint Research Centre, s 22(1)(a)(ii) ..., s 22(1)(a)(ii) and s 22(1)(a)(ii) Mapping Global Forest Cover of the Year 2020 to Support the EU Regulation on Deforestation-free Supply Chains, 2024, EUR 31888 EN (JRC136960)

has been published on the International day of forests, 21 March 2024.

It is available for download on

https://aus01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fdata.europa.eu%2Fdoi%2F10.2760%2F26253 22&data=05%7C02%7Cs 22(1)(a)(ii) %40dfat.gov.au%7Cb1786d8f8e5e4b62002508dc53a54c5d%7C9b7f23b30e83 47a58a40ffa8a6fea536%7C0%7C0%7C638477216625514449%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwM DAiLCJQIjoiV2IuMzIiLCJBTil6Ik1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=k16BA4%2BhKdVcapCDIa6k7d3rV hz%2FvJcrX1xX1GRaUac%3D&reserved=0

wrote:

Best regards, ^{s 22(1)(a)(ii)}

Sent from my iPhone

```
> On 2 Apr 2024, at 17:34, s 22(1)(a)(ii) s 22(1)(a)(ii)
> OFFICIAL
> Dear <sup>s 22(1)(a)(ii)</sup>
>
```

> I hope you had a nice break.

>

> A small query from our side. In the letter it says:

>

> "We confirm that we apply the definitions set out in the deforestation-free supply chains Regulation (EU) 2023/1115 and by the FAO, and that we retain areas larger than 0.5 hectares. Preliminary assessments indicate an accuracy level of approximately 80% globally. A technical report describing the input data, methodology and first assessments, including observed shortcomings, will be released tentatively by the end of March 2024"

> Our colleagues were wondering if you have any further information on when the technical report may be made available?

>

> Kind Regards

- >
- >
- >

```
LEX 33330
                                                                                             Page 12 of 145
>s 22(1)(a)(ii)
> Adviser – Agricultural Affairs
>
> Australian Mission to the European Union Avenue des Arts 56, 1000 Brussels
                                | T: s 22(1)(a)(ii)
> E: s 22(1)(a)(ii)
                                                       | @AustraliaEU |
https://aus01.safelinks.protection.outlook.com/?url=https%3A%2F%2Furldefense.com%2Fv3%2F__http%3A%2F%2F
www.eu.mission.gov.au_%3B!!DOxrgLBm!CaJvnu_UnQ4mVtoLlazZdvJU1jcU25WiCRmOrK6lYc9psGtlbfFkx3jKYta010
wyladayqae3AljtiJh9n1lMNWEIX833v1egSlaOOzCV6fG%24&data=05%7C02%7Cs 22(1)(a)(ii) %40dfat.gov.au%7Cb
1786d8f8e5e4b62002508dc53a54c5d%7C9b7f23b30e8347a58a40ffa8a6fea536%7C0%7C0%7C63847721662552236
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C0%7C%7C%7C&sdata=IqoEx3NIzOvqqCvybIU24szOXgGgZQ%2FWZSqDPzqevbo%3D&reserved=0
>
> ----- Original Message-----
> From: s 22(1)(a)(ii) s 22(1)(a)(ii)
> Sent: Monday, March 25, 2024 1:17 PM
> To: s 22(1)(a)(ii)
                        (JRC) s 22(1)(a)(ii)
                                                                 s 22(1)(a)(ii)
> Cc: s 22(1)(a)(ii) s 22(1)(a)(ii)
                                               s 22(1)(a)(ii) s 22(1)(a)(ii)
> Subject: Meeting: Australia/JRC re EU Forest Observatory Map [SEC=OFFICIAL]
> OFFICIAL
> Dear s 22(1)(a)(ii)
                              s 22(1)(a)(ii)
>
> Thank you for the reply correspondence from s 22(1)(a)(ii)
> Australia would like to propose either Thursday 11 April or Friday 12 April for the meeting outlined.
>
> The time difference between Europe and Australia (Canberra) at this time will be 8 hours.
>
> As such, we propose 9am Brussels time/5pm Canberra time.
>
> Would this suit the JRC?
>
> If so, we would welcome you providing the email addresses of JRC participants, and we would be happy to provide
an MS Teams link for a 90 minute virtual meeting.
>
> s 22(1)(a)(ii) - can you please kindly forward this email on to s 22(1)(a)(ii)
                                                                                    if I have incorrectly listed her
email address.
>
> With kind regards, <sup>s 22(1)(a)(ii)</sup>
>
>
> s 22(1)(a)(ii)
> Counsellor | Agriculture, Fisheries & Forestry
>
> Australian Mission to the EU & NATO,
> Embassy to Belgium & Luxembourg
> Avenue des Arts 56, 1000 Brussels
> s 22(1)(a)(ii) | s 22(1)(a)(ii)
>
>
> ----- Original Message-----
> From: s 22(1)(a)(ii)
                           (JRC) s 22(1)(a)(ii)
> Sent: Friday, March 15, 2024 3:12 PM
> To: s 22(1)(a)(ii) s 22(1)(a)(ii)
> Cc: s 22(1)(a)(ii) s 22(1)(a)(ii)
```

> Subject: [EXTERNAL] [Re] EU Deforestation Regulation Global Map letter from Secretary to European Commission [SEC=OFFICIAL] - Ares(2024)2005762

>

> CAUTION: This email originated from outside the organisation. Do not click links or open attachments unless you recognise the sender.

- >
- > Dear s 22(1)(a)(ii)

> Please find here attached a reply to your letter from our Director General s 22(1)(a)(ii)

>

> With kind regards,

>

> s 22(1)(a)(ii) on behalf of s 22(1)(a)(ii)

From:	s 22(1)(a)(ii) s 22(1)(a)(ii)
Sent:	Tuesdav. 9 April 2024 6:42 PM
To:	s 22(1)(a)(ii) (DFAT)
Cc:	s 22(1)(a)(ii) s 22(1)(a)(ii) s 22(1)(a)(ii)
Subject:	[EXTERNAL] RE: EUDR Meeting Aus and JRC [SEC=UNOFFICIAL]

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s 22(1)(a)(ii)

s 22(1)(a)(ii) s 22(1)(a)(ii) s 22(1)(a)(ii) European Commission, Joint Research Centre (EC-JRC) Via E. Fermi, 2749, TP261, I-21027 Ispra (VA), Italy s 22(1)(a)(ii) s 22(1)(a)(ii) s 22(1)(a)(ii)

> From: s 22(1)(a)(ii) Sent: Tuesday, April 9, 2024 9:37 AM To: s 22(1)(a)(ii) (JRC-ISPRA) Cc: s 22(1)(a)(ii) (JRC-ISPRA) ; s 22(1)(a)(ii) (JRC-ISPRA) ; s 22(1)(a)(ii) Subject: EUDR Meeting Aus and JRC [SEC=UNOFFICIAL]

Dear s 22(1)(a)(ii)

I, along with my colleague S 22(1)(a)(ii) both posted in Brussels will be participating in the meeting with JRC on EUDR mapping this Friday.

We have had a request from Capital to see if it is possible for s 22(1)(a)(ii) (JRC) to be also invited to the meeting given he reviewed GFC 2020 for Australia. If it is possible could you please provide his email address and an invite will be sent.

We look forward to catching up.

Best regards

s 22(1)(a)(ii)

s 22(1)(a)(ii) Minister Counsellor, Agriculture s 22(1)(a)(ii) | s Australian Embassy to Belgium and Luxembourg Mission to NATO and the EU s 22(1)(a)(ii)

| s 22(1)(a)(ii)

Avenue des Arts 56 1000 Brussels

LEX 33330



The department acknowledges the traditional custodians of Australia and their continuing connection to land, sea, environment, water and community. We pay our respect to the traditional custodians, their culture, and elders both past and present.

Subject: Location:	JRC / DAFF meeting [SEC=OFFICIAL] Microsoft Teams Meeting; ACT CQ2 06.004 (VC Unit Type 1 No IPTV)
Start: End:	Fri 12/04/2024 5:00 PM Fri 12/04/2024 6:45 PM
Recurrence:	(none)
Meeting Status:	Meeting organizer
Organizer: Required Attendees:	Europe.tmad Europe.tmad; s 22(1)(a)(ii) s 22(1)(a)
Optional Attendees:	s 22(1)(a)(ii) s 22(1)(a)(ii) s 22(1)(a)(ii) s 22(1)(a)(ii) (DFAT); s 22(1)(a)(ii) s 22(1)(a)

Update: 10 April

Good morning/afternoon

Please find attached the draft agenda for this meeting.

Kind regards, s 22(1)(a)(ii)

Good morning,

Please find below the link for the meeting. We will share a draft agenda for comments in the coming days.

Kind regards, s 22(1)(a)(ii)

Microsoft Teams <u>Need help?</u>

Join the meeting now

Meeting ID: 468 397 941 647 Passcode: G2iGw3

Join on a video conferencing device

LEX 33330 Tenant key: <u>597361658@t.plcm.vc</u> Video ID: 135 923 884 0 <u>More info</u>

For organizers: <u>Meeting options</u> | <u>Reset dial-in PIN</u>

Meeting between the European Commission Joint Research Centre and Australian Government Department of Agriculture, Fisheries and Forestry

17:00-18:45 (Canberra AEST) 09:00-10:45 (Brussels CEST), Friday 12 April 2024

AGENDA

Chair: s 22(1)(a)(ii)

Time	Item	Responsibility
17:00 – 17:10	 Introductions Chair to open meeting, outline purpose and introduce key areas of DAFF officers present. JRC acknowledgements and introduction of officers present. 	Australia/EU JRC
17:10-17:40	Production of the GFC 2020 dataset – including purpose of the dataset, validation, assessment and review of the dataset for Australia	JRC to lead
17:40 – 17:50	Discussion	All
17:50 – 18:20	Assessment of Australia's forest datasets and the GFC 2020 for Australia – including distinct features of Australia's forests and agricultural uses	ABARES to lead
18:20 – 18:30	Discussion	All
18:30 - 18:40	 Opportunities to collaborate: assessment of global data sources use of national datasets in validation participation in validation process next steps 	All
18:40 - 18:45	Close of meeting	

Attendees:

Joint Research Centre European Commission

s 22(1)(a)(ii)	Directorate Sustainable Resources
s 22(1)(a)(ii)	Institute for Environment and Sustainabilit
s 22(1)(a)(ii)	Senior Scientist
s 22(1)(a)(ii)	Senior Scientist and Technical Project Officer

Australian Embassy in Belgium - Brussels Post

s 22(1)(a)(ii) - Agriculture Minister Counsellor

s 22(1)(a)(ii) – Agriculture Counsellor

Australian Government Department of Agriculture, Fisheries and Forestry

s 22(1)(a)(ii) Director, Trade and Global Change, ABARES (Chair)

s 22(1)(a)(ii) , Program Lead, Forest and Land Sciences, ABARES

s 22(1)(a)(ii) Principal Scientist, Forest and Land Sciences, ABARES

- s 22(1)(a)(ii) Principal Scientist, Forest and Land Sciences, ABARES
- s 22(1)(a)(ii) Scientist, Forest and Land Sciences, ABARES
- s 22(1)(a)(ii) A/g Director, International Forest Policy
- s 22(1)(a)(ii) Assistant Director, International Forest Policy
- s 22(1)(a)(ii) Policy Officer, International Forest Policy
- s 22(1)(a)(ii) Assistant Director, Plantations and Innovations
- s 22(1)(a)(ii) Assistant Director, Americas and Europe Ag Markets
- s 22(1)(a)(ii) Policy Officer, Americas and Europe Ag Markets

Department of Climate Change, Energy, the Environment and Water

- s 22(1)(a)(ii) Director, Land & Agriculture Sectors Emissions Reporting
- s 22(1)(a)(ii) Principal Scientist, Modelling & Geospatial
- s 22(1)(a)(ii) Scientist, Modelling & Geospatial

From: s 22(1)(a)(ii) Sent: Monday, April 15, 2024 9:12 AM To: ... Subject: RE: JRC / DAFF meeting [SEC=OFFICIAL]

Morning all, thanks ^{s 22(1)(a)(ii)}

Couple of additional or strengthened points from an ABARES perspective, and one important numerical correction:

- Agree that there was continual emphasis from the JRC that the EU GFC 2020 mapping is just a guide. There was clear expectation from the JRC that individual operators also use their own mapping and images to support a no-deforestation status for their goods. Useful verbatim quote from JRC presenter: "National information is always more accurate than global information". There was also strong and specific support for the use of ABARES public forest mapping products as accurate national information for Australia.
- 2) Overlaying ABARES agricultural land use mapping on the EU GFC 2020 forest map identified 63 million hectares (not 630,000 ha as ^{\$22(1)(a)(ii)} states below) of forest as 'grazing natural vegetation'. By Australia's definition, this area is forest with a grazing land use. On some readings, the EU definition excludes this from forest, but personally I am not yet settled on that and don't believe any guidance issued to date is clear.
 - The JRC explained that they have **not** masked out any grazing country from their forest map, and are **not** able to do so. This is because there are no global spatial datasets containing this information: the only relevant global datasets report vegetation clearance for cropping or pastures, not grazing in retained undegraded natural vegetation.
 - If another presentation focussing on grazing natural vegetation is arranged, as ^{s 22(1)(a)(i)} suggests, this would likely require significant input from agricultural scientists on associated vegetation dynamics and mapping: s 22(1)(a)(ii) (ABARES Land Use) your advice? Some policy thought would also be required on the direction here.
- Agree that the EU moving into similar regulations around clearing other wooded land could remove the uncertainty around the forest definitional differences around height and cover thresholds.
- 4) ABARES is already in contact with the JRC about us validating the EU GFC 2020 mapping for Australia using 2455 sample points across Australia and associated imagery for 2020. This will require a little thought (on baseline definitions, of course!) but can likely be done within a week when we are up and running with their sample points.

I have copies of the JRC presentation and the ABARES presentation if anyone needs them – and can load them onto some shared server?

Regards

s 22(1)(a)(ii)

From: s 22(1)(a)(ii) s 22(1)(a)(ii) Sent: Monday, April 15, 2024 7:08 AM To: ... Subject: RE: JRC / DAFF meeting [SEC=OFFICIAL]

OFFICIAL

Dear All

Noting that the TID EU team is capturing notes from the meeting I thought I would share some observations and points that popped out for me from the meeting with JRC on Friday. Firstly though thanks \$22(1)(a)(ii) \$22(1)(a)(ii) \$22(1)(a)(iii) \$22(1)(a)(iii) \$22(1)(a)(iiii) \$22(1)(a)(iii) \$22(1)(a)(iii)

I thought the meeting went really well and I had a clear sense from the JRC participants that there was respect for the robustness of the forest mapping work Australia has done and as well the preparation ABARES had undertaken for the meeting. Part of that robustness is also understanding where the weaknesses and challenges are and being able and willing to discuss this with JRC indicates our maturity with regards to where we are at. Similarly, I would have to say kudos to JRC for also identifying where the weaknesses, gaps, limitations were with their own mapping and their willingness to seek to understand Australia's position and to continue to exchange information going forward.

My notes below focussed on the responses from the JRC (Yellow highlighted text where some possible actions).

Some points that stood out to me:

Legal status of the Global Forest Cover map - Is not mandatory i.e. not in the Articles of regulations, is just a tool and no obligation to use a map, however 'geolocation' is in the legal text; map is not just for EUDR.

Mapping challenges identified by the JRC – they stated that crops that grow under trees is the biggest challenge, trees but not forest e.g. plantations is hard, more challenging where forest for timber production has been harvested.

It was good to be able to describe to the JRC our extensive cattle grazing systems where vast parts of pastoral land has native vegetation coverage from grasslands to woodlands to forested lands which we identify as agricultural land and where cattle are grazing under trees (and sometimes on trees), noting that when we overlay agriculture land use mapping with EU map it removes approx 630,000 ha *(error: 63 million hectares – see above)* of forested land where cattle graze under forested lands. T i.eheir responses on this seem to indicate that they were not familiar with this. Furthermore their reference to DG ENVI finalising guidelines covering different scenarios of land use that may be covered by deforestation definitions highlighted to me that there could be benefit in reaching out to DG ENVI to attempt to get a hearing on this specific matter/scenario. If we can get a hearing then another presentation would be warranted.

Risk due diligence reporting (meeting border check requirements) - operators will need provide evidence to importers who have reporting responsibility. Use all available information in the best way possible. If global map shows forest does not mean there is forest from a legal perspective. National almost always more correct than Global mapping sets. Data to be made available to the operator - national, regional, local level maps have at least equal but should be better data to support the risk assessment (even better when the maps are publicly available). Checks at the importing country border also require access to data, mapping etc.

Broadening the EUDR - It would appear JRC may have started or is considering starting work on mapping for broadening coverage of the EUDR through the inclusion of additional environmental units/ecosystems e.g. woodland, wetlands etc. JRC made the point that if the EU (DG ENVI) review the EUDR and if this includes other woodland it will solve the disparity problem between the different definitions of forest cover E- U 10% canopy cover/>5m height (or could be), Aust 20% canopy cover/>2m (or could be).

This is concerning as we along with a number of other countries have requested that the EUDR does not broaden out the EUDR until the current measures are well and truly working at the operational level. While this not JRCs call or their issue it is something we (at the policy level) will need to continue to reinforce with the EC.

Other points I captured from the Q&A sessions (not comprehensive and others will be able to supplement):

How is grazing land assessed as a griculture land? $^{\rm s\ 22(1)(a)(ii)}$

Used rain forest and dry forest maps– only used global data sets to avoid a patchwork with irregular boundaries. Map updated by the end of the year and then at some point after implementation (review and refine?) and then on an as needs basis.

What data sets did you use to assess height for non tropical forest?^{s 22(1)(0)(0)} - Only used in the tropical belt otherwise there is no height layer – trusted the forest data as being greater than 5m. Acknowledged challenges of mapping dry forests

What's the link between the global forest dataset (GFD) and the change drivers data (CDD?^{522(1)(a)(i)} - No links, more scientific and exploratory

How do you manage forests that are part of the forest estate and that have been felled and are regrowing but not yet 5m?^{s2(1)(a)(i)}- Very challenging – we trust input data layers to extent possible that it is captured. World cover is tree cover from 2020 – doesn't look at what was before and what is after - time series overlays would be better to address this query. Map will therefor omit/include some of the areas.

Validation of the dataset? Do you see value in having regional experts contribute to validation process? (s 22(1)(a)(ii)) - Has been done in a qualitative manner by an independent group (also done internally). Copernicus land cover points 52,700? points across the globe to be used to further provide validation.

Do you see value in having regional experts contribute to validation process? (s 22(1)(a)(iii)) - There is possibility for Aust to be involved as Aust is recognised as its own region. GeoWiki interface is used. A mesh of 100mx100?. Aust will need to follow up next week if we want to contribute. JRC can provide the tool and training to support the validation. Requested info to be sent to set to willmak e contact.

s 22(1)(a)(ii)

s 22(1)(a)(ii)

Minister Counsellor, Agriculture s 22(1)(a)(ii) Australian Embassy to Belgium and Luxembourg Mission to NATO and the EU s 22(1)(a)(ii)

Avenue des Arts 56 1000 Brussels



The department acknowledges the traditional custodians of Australia and their continuing connection to land, sea, environment, water and community. We pay our respect to the traditional custodians, their culture, and elders both past and present.

| s 22(1)(a)(ii)

From:
Sent:
To:
Cc:
Subject:

s 22(1)(a)(ii) s 22(1)(a)(ii) Tuesday, 16 April 2024 9:17 PM s 22(1)(a)(ii) s 22(1)(a)(ii) RE: [EXTERNAL] Invitation to the 27th meeting of the Deforestation Platform on 24 April 2024 [SEC=OFFICIAL]

CAUTION: This email originated from outside the organisation. Do not click links or open attachments unless you recognise the sender.

Dear s 22(1)(a)(ii)

^{s 22(1)(a)(0)} has indeed registered for the meeting. The WEBEX link will be shared with him on Thursday morning.

Best regards,

s 22(1)(a)(ii)

From: s 22(1)(a)(ii) Sent: Tuesday, April 16, 2024 12:55 PM To: s 22(1)(a)(ii) (ENV) Cc: s 22(1)(a)(ii) Subject: RE: [EXTERNAL] Invitation to the 27th meeting of the Deforestation Platform on 24 April 2024 [SEC=OFFICIAL]

OFFICIAL

Dear^{s 22(1)(a)(ii)}

My apologies but I cannot see if Australia has rsvp'd to this meeting.

If ^{s22(1)(a)(0)} has, then please accept his RSVP, if not, can you please accept this as mine?

We look forward to the update next week.

Regards,^{s 22(1)(a)(ii)}

From: s 22(1)(a)(ii) s 22(1)(a)(ii) Sent: Monday, March 4, 2024 1:57 PM Subject: [EXTERNAL] Invitation to the 27th meeting of the Deforestation Platform on 24 April 2024

CAUTION: This email originated from outside the organisation. Do not click links or open attachments unless you recognise the sender.

Dear Madam/Sir/Colleague,

Please find attached the invitation to the 27th meeting of the Deforestation Platform. The meeting will start with a session on the Team Europe Initiative on the Deforestation

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Regulation. It will continue with a session on Smallholders, and the afternoon session will be dedicated to Traceability.

We would kindly ask you to register for the meeting **by COB on 17 April** at the latest, sending an email to s 22(1)(a)(ii) The WEBEX link will be sent to all registered participants closer to the date of the meeting.

Due to the high number of participants in the meetings of the Platform, we can unfortunately accept maximum one representative per third country or international organisation.

Thank you for your kind support and best regards,

s 22(1)(a)(ii) European Commission DG ENV .F.3, Global Environmental Cooperation & Multilateralism *Tel.* s 22(1)(a)(ii) Print only when necessary. Join us in improving the environment.

From: Sent: To: Cc:	s 22(1)(a)(ii) s 22(1)(a)(ii) Thursday, 9 May 2024 2:12 AM s 22(1)(a)(ii) (DFAT) s 22(1)(a)(ii) s 22(1)(a)(ii) s 22(1)(a)(ii) s 22(1)(a)(ii) s 22(1)(a)(ii) s 22(1)(a)(iii) s 22(1)(a)(iii) s 22(1)(a)(iii)
Subject:	[EXTERNAL] RE: Meeting request from the Australian Government to discuss EUDR land definitions [SEC=UNOFFICIAL]

CAUTION: This email originated from outside the organisation. Do not click links or open attachments unless you recognise the sender.

Dear s 22(1)(a)(ii)

I have coordinated with colleagues within DG AGRI and DG ENV – many thanks to ^{s 22(1)(a)(ii)} - and we are happy to confirm our availability for your proposed videoconference on 23 May at 8.30. Could you provide a Teams or Webex link? Best regards s 22(1)(a)(ii)

s 22(1)(a)(ii) s 22(1)(a)(ii) - Natural Resources, Biodiversity and Forestry



European Commission Directorate-General for Agriculture and Rural development B2 - Environmental SustainabilityRue de la Loi 130 s 22(1)(a)(ii) s 22(1)(a)(ii) s 22(1)(a)(ii) s 22(1)(a)(ii)

From: s 22(1)(a)(ii)
Sent: Monday, May 6, 2024 2:14 PM
To: s 22(1)(a)(ii) (AGRI)
Cc: s 22(1)(a)(ii) (AGRI) ; s 22(1)(a)(ii) s 22(1)(a)(ii)
Subject: Meeting request from the Australian Government to discuss EUDR land definitions [SEC=UNOFFICIAL]

Dear s 22(1)(a)(ii)

I am writing on behalf of the Australian Mission to the European Union.

Australia is following very closely the upcoming entering into force of the due diligence obligations linked to the new EU Deforestation Regulation. We are aiming to provide the maximum clarity to our industry on their obligations under

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the legislation, such as the applicable definitions and guidance that would be applied and operationalised in an Australian agricultural context.

We understand DG AGRI is working with DG ENVI on clarifying how to interpret and apply the definition of agricultural land. In light of this, we would like to take the opportunity to meet with you virtually to discuss.

As you can imagine, Australia has landscapes and agricultural practices that differs in scale and methods from what is common in the EU, and indeed from elsewhere internationally. Therefore, we think a short presentation, from our side, on this will help provide a better understanding on what the definition of agricultural land means in practice for a country like Australia.

For example, a large proportion of Australia is rangelands where cattle graze freely on pastoral freehold or leasehold land. On this land, there are millions of hectares of trees that fall within the EU definition of forest. Cattle graze among these trees. Officially, this land is classified as grazing native vegetation but the grazing intensity is very low and one issue is whether this land use could be described as 'predominantly agricultural land use' from an EU perspective. From ground level, it is much easier to understand how this would happen, but from an aerial view the grazing is often not detectable. Given the legislation only requires one geolocation point to be provided per enterprise in the case of cattle, we believe it is important to explore with you what that means when farms are often 10s to 100s of thousands of hectares of the landscape described above.

It is important to clarify, the intention of the meeting is not to request any change to the legislation, as we are quite aware that is not within the remit of DG AGRI. The aim would be to better understand the spirit of the legislation in this area and to look at the landscape type with you, to ensure that it is well understood and accounted for in any guidance for exporters.

It would be helpful to have our technical staff based in Australia on the call, therefore we would propose times that account for the time difference (8am or 9am). Perhaps 23 May at 8am or 9am?

If neither of these times are acceptable, could you please suggest some times that suit you.

Kind Regards

s 22(1)(a)(ii)

s 22(1)(a)(ii)

Minister Counsellor, Agriculture s 22(1)(a)(ii) | s 2 Australian Embassy to Belgium and Luxembourg Mission to NATO and the EU s 22(1)(a)(ii)

Avenue des Arts 56 1000 Brussels | s 22(1)(a)(ii)



We acknowledge the Traditional Owners of country throughc and recognise their continuing connection to land, waters an We pay our respects to their Elders past and present.

From:	s 22(1)(a)(ii) s 22(1)(a)(ii)
Sent:	Wednesday, 15 May 2024 10:14 PM
То:	s 22(1)(a)(ii)
Cc:	s 22(1)(a)(ii)
Subject:	FW: [EXTERNAL] Invitation to the 28th meeting of the Deforestation Platform on 20
	June 2024 [SEC=OFFICIAL]
Attachments:	28th mtg Deforestation_invitation_20 June 2024.pdf

OFFICIAL

Good Afternoon s 22(1)(a)(ii)

s 22(1)(a)(ii) s 22(1)(a)(ii)

will attend on behalf of Australia.

Kind Regards

From: s 22(1)(a)(ii)
Sent: Wednesday, May 15, 2024 11:13 AM
Subject: [EXTERNAL] Invitation to the 28th meeting of the Deforestation Platform on 20 June 2024

CAUTION: This email originated from outside the organisation. Do not click links or open attachments unless you recognise the sender.

Dear Madam/Sir/Colleague,

Please find attached the invitation to the 28th meeting of the Deforestation Platform, which will be held in hybrid mode. The morning session will be for all members and the afternoon session for the Member States Competent Authorities only.

We would kindly ask you to register for the meeting (sending an email to s 22(1)(a)(ii) by COB on 13 June at the latest, specifying whether you will attend in person or online.

Please remember that, due to the high number of participants, we can only accept one representative per non-EU country or international organisation in the meetings of the Deforestation Platform.

Thank you for your kind support and best regards,

s 22(1)(a)(ii)
European Commission
DG ENV .F.3, Global Environmental Cooperation & Multilateralism
Tel. s 22(1)(a)(ii)
Print only when necessary. Join us in improving the environment.



EUROPEAN COMMISSION DIRECTORATE-GENERAL ENVIRONMENT Directorate F - Global Sustainable Development ENV.F.1 – Planetary common goods, universal values and environmental security s 22(1)(a)(ii)

Brussels, 15 May 2024

INVITATION TO THE 28TH MEETING OF THE DEFORESTATION PLATFORM

The European Commission would like to invite representatives from the EU Member States (maximum two per Member State) and from the stakeholder organisations and third countries (maximum one per entity) to participate in a **hybrid** meeting of the <u>Multi-Stakeholder Platform on</u> <u>Protecting and Restoring the World's Forests</u>. The meeting will focus on Deforestation and Forest Degradation.

Date: 20 June 2024

Venue: Room 0A, Conference Centre Albert Borschette (CCAB), Rue Froissart 36, 1040 Brussels

or online via WEBEX

Time: 09:30 – 15:00 (all Members)

15:30 – 17:00 (Member States only)

The draft agenda and supporting documents will be made available on the <u>Register</u> closer to the date of the meeting.

We kindly ask you to register for the meeting **by COB on 13 June**, either via AGM for Member States and stakeholder organisations, or by sending an email to s 22(1)(a)(ii) for third countries, international organisation and Commission colleagues. Please do not forget to specify whether you will attend **in person or online**.

Those wishing to participate online will be provided with the WEBEX link on 14 June. On the day of the meeting, participants' names will be cross-checked against registration before being admitted into the meeting.

May we please ask you to adhere to the following rules to facilitate the organisation and conduct of the meeting:

- Please refrain from distributing the WEBEX link to non-registered colleagues.
- When joining the meeting, please update your name in the following format: ORGANISATION – SURNAME First name (or COUNTRY CODE – SURNAME First name for EU Member States and non-EU countries).
- Please keep you microphone muted, unless you have been invited to intervene by the Chair.
- Please keep your video off and switch it on only when you intervene.

Yours faithfully,

(E-signed) s 22(1)(a)(ii) s 22(1)(a)(ii)

From: Sent: To: Subject: s 22(1)(a)(ii) Thursday, 16 May 2024 11:16 AM s 22(1)(a)(ii) RE: GFC2020 validation - progress [SEC=OFFICIAL]

Hi ^{s 22(1)(a)(ii)}

Just sending an update as requested in your email below.

Samples assessed: **1,271** out of **2,455**. Completion likely: **5**th **June** or **before**.

I will send separately some sample sites where I have had difficulties with validation.

Regards s 22(1)(a)(ii)

From: s 22(1)(a)(ii) s 22(1)(a)(ii)			
Sent: Tuesday, May 14, 2024 2:45 AM			
To: s 22(1)(a)(ii) s 22(1)(a)(ii)	s 2	2(1)(a)(ii) s 22(1)(a)(ii)
s 22(1)(a)(ii) s 22(1)(a)(ii)	s 22(1)(a)	(ii) s 22(1)(a)(ii))
s 22(1)(a)(ii) s 22(1)(a)(ii)		s 22(1)(a)(ii)	
s 22(1)(a)(ii)	s 22(1)(a)(ii)	s 22(1)(a)(ii)	s 22(1)(a)(ii)
^{s 22(1)(a)(ii)} s 22(1)(a)(ii)	s 22(1)(a)(ii)	s 22(1)(a)(ii)	s 22(1)(a)(ii)
s 22(1)(a)(ii)	s 22(1)(a)(ii)		@aff.gov.au>; <mark>s 22(1)(a)(ii)</mark>
^{s 22(1)(a)(ii)} s 22(1)(a)(ii)			
Cc: s 22(1)(a)(ii) s 22(1)(a)(ii)			
Subject: GFC2020 validation - progress			

Dear evaluators of the GFC 2020 map,

I would like to assess the progress of the response data labelling and give you information about next steps. I kindly ask you to indicate your progress in the table on page 9/10 of this <u>assessment guidelines</u> (@^{s 22(1)(a)(ii)} please send me your feedback by email). Please look for your strata and enter the information in columns:

- "samples assessed" The approximate number of assessed samples is enough.
- **"Completion likely".** You should envisage completion by 5 June. In case you foresee that completion is not possible, please indicate by 15 May, COB. I will check with you for the best strategy.

When reaching the end of you samples you should receive a message from Geo-wiki. Please be aware that the counter under "your validations" and "classified points" counts every submission, hence increments also when you submit a second assessment for the same sample location. The best way to check if you assessed all samples is by "reaching the end of the sample list is Google Earth Pro".

When you think you completed all samples, please request the data base extract for your strata from ^{s 22(1)(a)(ii)} In this extract you can filter for "no assignment", most importantly under the category "issues with class assignment". You can then go back to the geo-wiki and assign the omitted samples using the "jump to point" function. Please be aware that the database stores all submission, and the label that counts is the latest submission. When you completed your samples you may also indicate this in the in the guideline table under "completion likely".

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Page 31 of 145

For samples with low confidence we will undertake a second assessment with other experts, possibly also for some samples for which you assigned high confidence. To retain a manageable number of samples to be assessed by a second reviewer, please ensure to the extent possible that samples with low confidence are not more than 10% of your total samples (the less, the better). This second round will start in the second half of June. In the next days I will undertake a final refinement of the assessment guidelines for the reviewers of the second round.

In case of issues please contact:

- Me until 17 May
- $$^{s\,22(1)(a)(i)}$ and <math display="inline">$^{s\,22(1)(a)(ii)}$ (with copy to me) between 20 and 24 May$
- Me with copy to ^{s 22(1)(a)(i)} between 27 and 31 May

Best regards, ^{s 22(1)(a)(ii)}

Subject: Location:	With MS Teams Link - Meeting with Australian Department of Agriculture to discuss 'agricultural land' classification [SEC=OFFICIAL] Microsoft Teams Meeting
Start: End:	Thu 23/05/2024 4:30 PM Thu 23/05/2024 5:30 PM
Recurrence:	(none)
Meeting Status:	Accepted
Organizer:	s 22(1)(a)(ii)

OFFICIAL

Dear All

Please use this meeting invitation for our discussion shortly – which now has the MS Teams link.

With best wishes s 22(1)(a)(ii)

s 22(1)(a)(ii) Counsellor | Agriculture, Fisheries & Forestry | Australian Mission to the EU T: s 22(1)(a)(ii) | M: s 22(1)(a)(ii)

Microsoft Teams <u>Need help?</u>

Join the meeting now

Meeting ID: 476 745 176 947 Passcode: wTiWcb

Dial-in by phone

+61 2 8318 0088,,50373000# Australia, Sydney Find a local number Phone conference ID: 503 730 00#

Join on a video conferencing device

Tenant key: dfat@m.webex.com Video ID: 133 700 504 8 <u>More info</u>





Australian Governme

From:	s 22(1)(a)(ii) s 22(1)(a)(ii)	
Sent:	Thursday, 30 May 2024 8:39 PM	
То:	s 22(1)(a)(ii)	
Cc:	s 22(1)(a)(ii) s 22(1)(a)(ii) (DFAT); s 22(1)(a)(ii)
Subject:	Communication from the Australian Department of Forestry regarding the European Union Deforesta [SEC=OFFICIAL:Sensitive]	of Agriculture, Fisheries and tion Regulation
Attachments:	Australia - EUDR 30 May - ^{s 22(1)(a)(ii)} to s 22(1)(a)(ii),	odf

OFFICIAL: Sensitive

Good Afternoon s 22(1)(a)(ii)

On behalf of the Australian Department of Agriculture, Fisheries and Forestry, I attach a letter regarding implementation of the European Union Deforestation Regulation.

Australia very much appreciates this opportunity to elaborate on the specifics of our agricultural system, as referenced in our 23 May officials meeting with DG AGRI and DG ENVI.

We look forward to further ongoing engagement.

Warm Regards

s 22(1)(a)(ii) Adviser – Agricultural Affairs

Australian Mission to the European Union

Avenue des Arts 56, 1000 Brussels E: s 22(1)(a)(ii) | T: s 22(1)(a)(ii) @AustraliaEU | www.eu.mission.gov.au



The department acknowledges the Traditional Custodians of Australia and their continuing connection to land, sea environment, water and community. We pay our respect to the Traditional Custodians, their culture, and elders both past and present.

T



29 May 2024

s 22(1)(a)(ii) Director Directorate-General for the Environment European Commission

Dear s 22(1)(a)(ii)

I write following the meeting of 23 May 2024 between officials from the Australian Government and the European Commission (DG AGRI and DG ENV) regarding the European Union Regulation on Deforestation-free products (EUDR). Australia appreciated the opportunity to outline our agricultural production systems and practices and was encouraged by the engagement with your officials. As discussed at the meeting, we look forward to receiving updated guidance material providing clarity on how the Australian context will be considered in assessing compliance with the EUDR.

As outlined in previous communication, including the letter of 6 May 2024, from Senator, the Hon s 22(1)(a)(ii) Minister for Agriculture, Fisheries and Forestry, to Commissioner s 22(1)(a)(ii) Australia requests delay in implementation of the EUDR until there is greater clarity and arrangements are effectively in place to ensure a smooth continuation of trade. In the interim, we continue to work to understand the implications for Australia, as well as assisting affected industries prepare to meet the due diligence obligations. We would therefore appreciate additional guidance on the following points:

1. **Geolocation Data Usage:** We note the EUDR envisages cattle production properties being identified by a single geolocation point. Considering the objective of the legislation, the operability of such a system is unclear in Australian situations.

The scale of individual Australian grazing properties poses unique challenges. Some are thousands of square kilometres in size and carry large areas of forest, other wooded land, and open grassland; with cattle free to roam and graze across all these areas. Understanding how a single geolocation data point and information about that point will be used by Operators and EU Member State Competent Authorities to assess the status of an entire property is crucial for our cattle industry to meet due diligence obligations. How will Member State Competent Authorities assess a due diligence statement which contains a single geolocation point for a property that is potentially the size of a small European country?

2. Grazing Intensity and Agricultural Land: There is a lack of clarity around the intensity of grazing use required for land to be classified as 'predominantly agricultural use', and therefore not forest under the EUDR. In the rangelands of Australia, cattle roam freely and graze large properties of pastoral freehold or leasehold land often with forest canopy cover over some areas, without impacting canopy cover or causing forest degradation. Stocking density and grazing intensity is often very low (and can be as low as one head of cattle per 100 hectares). The benefits of this model are more forage, less pressure on the landscape and a maintenance of biodiversity.

Australia would appreciate the EU taking account of this system when it provides further clarification on what constitutes 'predominantly agricultural use'. Perverse incentives could be avoided with an acknowledgement that low-intensity livestock grazing does not count as



'predominantly agricultural land use' for the purposes of the EUDR forest definition provided that this grazing does not cause forest degradation.

3. **Grazing Frequency and Agricultural Land:** Owing to the ability of the Australian agricultural landscape to regenerate forest, we also seek clarity on how the EU will view efforts to maintain agricultural properties. Specifically, we seek clarification on the frequency at which land must be used for grazing to remain as agricultural land, and therefore not forest under the EU definition.

On any large agricultural property across Australia, depending on climatic and market conditions, there will be areas not currently used for grazing. Such previously cleared agricultural land can regenerate vegetation over several years to the extent it becomes forest under the EUDR definition. When the farmer has the capacity or when climate or market conditions change, they may then re-clear that land and bring it back into grazing use. It would be useful to understand how long an agricultural use classification persists in the absence of actual predominant agricultural use, that is, how long agricultural land can persist as 'set-aside land'. Placing a short timeframe on when land would lose its status as agricultural land would create a situation where a farmer would be forced to invest significant time and effort to remove regrowth trees in different sections of the property before that regrowth reached the EUDR definition of forest.

In the guidance provided so far, rotational grazing is mentioned but this does not capture the extended timeframes of non-utilisation typical in parts of Australia. Australia would welcome more general language around predominantly agricultural land maintaining its status in systems where it is common for areas to be brought in and out of production depending on climate and market conditions. Forest regrowing on agricultural land prior to subsequent use of the land again for agriculture should not be considered in scope for deforestation for the purposes of the EUDR and the land should retain the classification of 'predominantly agricultural land'.

- 4. **Plantations and Agricultural Land:** Guidance provided to date covers silvopastoral systems and agroforestry, but not plantations on previous agricultural land. In Australia, land can rotate between being agricultural land or forest plantation depending on market conditions, rainfall, and other factors as part of normal farm management, with intervening fallow periods. Non-recognition of such a practice could limit a farmer's ability to establish plantation forests on their land when other agricultural ventures are not viable. It would be useful to have confirmation that areas that carried plantation forest on 31 December 2020 can be reconverted to agricultural land without this being classified as deforestation. We therefore suggest that harvesting plantations on previous agricultural land prior to subsequent use of the land again for agriculture is not assessed as deforestation for the purposes of the EUDR.
- 5. Aerial reseeding and planted forest: Regeneration of some natural forest systems in Australia after harvest is facilitated by aerial application of seed of the mix of species collected from the area before harvest. This applies particularly to forests in which the normal pattern of natural disturbance involves wildfire. These reseeded regenerating forests rapidly become indistinguishable from naturally regenerating forest.

According to the EUDR definition of forest degradation, there appears to be a disincentive to reseed such areas. Reseeding which results in the trees that grow from added seed constituting over 50% of the growing stock at maturity is defined as causing degradation of that forest through conversion of primary forest to 'planted forest' even if the resultant forests are indistinguishable from naturally regenerating forests.


One option would be for the EU to exclude from the definition of degradation planted forests "which at stand maturity resemble or will resemble naturally regenerating forests", similar to the exclusion that is already in place for plantation forests.

- 6. Compliance Data Format: We understand stakeholders have requested compatibility of additional file formats, rather than solely GeoJson. Australia supports maximum interoperability. Further information on data formatting would be greatly appreciated, as well as the upcoming API technical specifications, as this will enable our industry to develop compatible systems for efficient data transfer.
- 7. **Feedback Mechanism Post-Implementation**: Contact details or guidance would be appreciated on whom to contact when issues are encountered after implementation of the due diligence obligations. It is imperative Operators and Australian exporters know the avenues available for engagement and resolution.

Australia appreciates the Commission's continued engagement regarding the EUDR and looks forward to your response to the matters raised in this correspondence.

Yours sincerely,

s 22(1)(a)(ii)

Acting First Assistant Secretary Trade and International Division Department of Agriculture, Fisheries and Forestry

s 22(1)(a)(ii)

From: Sent: To: Cc: Subject: s 22(1)(a)(ii) Wednesday, 5 June 2024 10:18 PM s 22(1)(a)(ii) s 22(1)(a)(ii) s 22(1)(a)(ii) s 22(1)(a)(ii) GFC2020 validation completion [SEC=OFFICIAL]

Hello ^{s 22(1)(a)(ii)}

I am writing to advise that I have completed my validation of GFC2020 forest cover samples for the Australia strata.

s 22(1)(a)(ii) could you please send a database extract for your strata so I can check for omissions.

Regards s 22(1)(a)(ii)

s 22(1)(a)(ii)

From: Sent: To: Cc: Subject: s 22(1)(a)(ii) Tuesday, 11 June 2024 3:49 PM s 22(1)(a)(ii) s 22(1)(a)(ii) RE: GFC2020 validation - progress [SEC=OFFICIAL]

Dear ^{s 22(1)(a)(ii)}

This is to advise ^{s 22(1)(a)(ii)} provided me with an extract from the database of my sample validation points. I have since revised all sample points that had potential issues and I don't anticipate touching the data again.

For your information, I will be travelling with work for the rest of the week and won't be able to see and/or respond to any emails until next week.

Regards s 22(1)(a)(ii)

From: s 22(1)(a)(ii) s 22(1)(a)(ii) Sent: Friday, June 7, 2024 4:24 AM **To:** s 22(1)(a)(ii) ^{s 22(1)(a)(ii)} s 22(1)(a)(ii) @aff.gov.au>; s 22(1)(a)(ii) s 22(1)(a)(ii) ^{s 22(1)(a)(ii)}s 22(1)(a)(ii) s 22(1)(a)(ii) Cc: s 22(1)(a)(ii) s 22(1)(a)(ii) Subject: RE: GFC2020 validation - progress

Dear interpreters,

Many thanks for your efforts so far. I see that all are you are/were very active and many have completed their strata. I also apologize for my silence and not being able to respond to each of you individually, I was out of office for two weeks and upon return I had to speed up work on my strata ⁽²⁾.

Please find attached a status table (see also <u>here</u> on p 11). Some of you receive help for their strata, this is why you find two names. Column "Samples assessed" indicates the progress (an equal number to column "Samples" means that you made assignments for all samples). Column "Completion" means that you requested the data base for your strata from ^{s 22(1)(a)(ii)} and checked if there are unassigned samples, other errors or simply things that you wanted to correct, where "Completed" means that you finished all corrections and will not touch the data again.

Next steps: If your strata is not completed, please do so by 11 June COB. If this is not feasible, please email me. Starting on 12 June I will compile the data with the help of ^{s 22(1)(a)(ii)} If I see issues in your strata will reach out to you between 12 and 14 June. Next, I will prepare the second round of review with external experts for low confidence samples and a small selection of others. This should start on 21 June. In case of no further issues we will inform you about the outcomes and when we proceed with the paper after summer recess (on the northern hemisphere).

Best regards, ^{s 22(1)(a)(ii)}

LEX 33330

ID	Region	Interpreter	Samples	Samples assessed [number]	Completion
1	Alaska, Canada, Greenland	s 22(1)(a)(ii) s 22(1)(a)(ii)	1318	Ca. 600	no
2	USA, Mexico, Central America and the Caribbean	s 22(1)(a)(ii)	1738	1738	no
3	Colombia, Ecuador, Peru, Bolivia, Chile, Argentina	s 22(1)(a)(ii)	1290	1290	completed
4	Venezuela, Suriname, Guyana, FR-Guyana, Brasil, Paraguay, Uruguay	s 22(1)(a)(ii)	1560	1560	completed
5	Northern, Central and Eastern Europe	s 22(1)(a)(ii)	2029	??	no
6	Mediterranean Europe	s 22(1)(a)(ii)	1113	1113	completed
7	Northern Africa	s 22(1)(a)(ii)	1695	900	no
8	Southern Africa	s 22(1)(a)(ii) s 22(1)(a)(ii) ^{s 22(1)(a)(ii)} s 22(1)(a)(ii)	1922	230	no
9	Russia	s 22(1)(a)(ii) s 22(1)(a)(ii)	2300	2300	completed
10	Central Asia and Middle East	s 22(1)(a)(ii)	1342	1342	completed
11	China, Mongolia, Japan, North Korea, South Korea	s 22(1)(a)(ii) s 22(1)(a)(ii)	1306	1000	no
12	Southeast Asia	s 22(1)(a)(ii)	1158	1158	completed
13	Australia	s 22(1)(a)(ii)	2455	2455	No
14	New Zealand and Pacific Islands	s 22(1)(a)(ii)	526	526	completed

From: s 22(1)(a)(ii) (JRC-ISPRA) Sent: Monday, May 13, 2024 6:45 PM **To:** s 22(1)(a)(ii) (JRC-ISPRA) s 22(1)(a)(ii)s 22(1)(a)(ii) (JRC-ISPRA-EXT) s 22(1)(a)(ii) s 22(1)(a)(ii) (JRC-ISPRA) s 22(1)(a)(ii) s 22(1)(a)(ii) s 22(1)(a)(ii) (JRC-ISPRA-EXT) s 22(1)(a)(ii) (JRC-ISPRA) s 22(1)(a)(ii) s 22(1)(a)(ii) s 22(1)(a)(ii) s 22(1)(a)(ii) s 22(1)(a)(ii) (JRC-ISPRA-EXT) s 22(1)(a)(ii) s 22(1)(a)(ii) (JRC-ISPRA) s 22(1)(a)(ii) (JRC-ISPRA) s 22(1)(a)(ii) s 22(1)(a)(ii) s 22(1)(a)(ii) (JRC-ISPRA-EXT) s 22(1)(a)(ii) s 22(1)(a)(ii) (JRC-ISPRA-EXT) s 22(1)(a)(ii) s 22(1)(a)(ii) s 22(1)(a)(ii) @aff.gov.au>; s 22(1)(a)(ii) (JRC-ISPRA) s 22(1)(a)(ii) **Cc:** s 22(1)(a)(ii) s 22(1)(a)(ii) Subject: GFC2020 validation - progress

Dear evaluators of the GFC 2020 map,

I would like to assess the progress of the response data labelling and give you information about next steps. I kindly ask you to indicate your progress in the table on page 9/10 of this <u>assessment guidelines</u> (@^{s 22(1)(a)(ii)} please send me your feedback by email). Please look for your strata and enter the information in columns:

• "samples assessed" The approximate number of assessed samples is enough.

LEX 33330

• **"Completion likely".** You should envisage completion by 5 June. In case you foresee that completion is not possible, please indicate by 15 May, COB. I will check with you for the best strategy.

When reaching the end of you samples you should receive a message from Geo-wiki. Please be aware that the counter under "your validations" and "classified points" counts every submission, hence increments also when you submit a second assessment for the same sample location. The best way to check if you assessed all samples is by "reaching the end of the sample list is Google Earth Pro".

When you think you completed all samples, please request the data base extract for your strata from ^{s 22(1)(a)(ii)} In this extract you can filter for "no assignment", most importantly under the category "issues with class assignment". You can then go back to the geo-wiki and assign the omitted samples using the "jump to point" function. Please be aware that the database stores all submission, and the label that counts is the latest submission. When you completed your samples you may also indicate this in the in the guideline table under "completion likely".

For samples with low confidence we will undertake a second assessment with other experts, possibly also for some samples for which you assigned high confidence. To retain a manageable number of samples to be assessed by a second reviewer, please ensure to the extent possible that samples with low confidence are not more than 10% of your total samples (the less, the better). This second round will start in the second half of June. In the next days I will undertake a final refinement of the assessment guidelines for the reviewers of the second round.

In case of issues please contact:

- Me until 17 May
- s22(1)(a)(ii) and s22(1)(a)(ii) (with copy to me) between 20 and 24 May
- Me with copy to ^{s 22(1)(a)(ii)} between 27 and 31 May

Best regards, ^{s 22(1)(a)(ii)}



EUROPEAN COMMISSION

DIRECTORATE-GENERAL ENVIRONMENT Directorate F – Green Diplomacy & Multilateralism **The Director**

> Brussels ENV.F.1/^{s 22(1)(a)(ii)}

s 22(1)(a)(ii)

Acting First Assistant Secretary Trade and International Division Department of Agriculture, Fisheries and Forestry Email: s 22(1)(a)(ii)

Dear s 22(1)(a)(ii)

Thank you for your letter of 29 May 2024 regarding the interpretation and implementation of the EU Deforestation Regulation (EUDR). Your letter reiterates a range of important issues relating to the Regulation, and I would like to thank you for sharing your views and concerns during the meetings on 12 March, 23 May, and beyond.

The EUDR marks a turning point in the global fight against deforestation and forest degradation. We are committed to implementing the EUDR in a spirit of close partnership, transparency, and open dialogue. The provisions of the Regulation and the timeline for the entry into application were decided by the co-legislators, driven by the urgency to act in view of continued high deforestation rates. While this timeline may be considered as a challenge by some, we are seeing encouraging progress in aligning with EUDR requirements in many countries and across all sectors. Intensive work is ongoing, here and in our partner countries with increased support from the EU and its Member States. In the private sector, companies are adapting to EUDR requirements, innovating in traceability and sustainability.

We are working very actively and in close cooperation with Member States on the Guidance, which will include a chapter on agricultural use, and which is planned for publication in the coming weeks. However, it is important to clarify that the Guidance will not provide a to-do-list for producers or operators: firstly, because the Guidance cannot address all situations for all commodities from all countries, and secondly because this would be at odds with a regulation which is based on the concept of due diligence and the operator's own responsibility.

Regarding your specific queries, while I can assure you that the guidance will shed more clarity, I can provide you with the following.

As regards the geolocation requirements for cattle, collecting and providing a geolocation point rather than a polygon is merely an option for operators. It is upon them to choose to do so in an individual case or to require polygons from their suppliers to ensure that products are both deforestation-free and legal. In the case of a check, competent authorities

Commission européenne/Europese Commissie, 1049 Bruxelles/Brussel, BELGIQUE/BELGIË – Tel. +32 22991111 Office: s 22(1)(a)(ii) – Tel. direct line s 22(1)(a)(ii)

may request information, documents and data beyond those contained in a due diligence statement to ensure that operators have met their obligations under the regulation.

We have taken good note of the Australian context regarding grazing intensity and frequency, set-aside land, and plantation forest and can assure you that we will further elaborate in the Guidance on the distinction between forest and agricultural use land and on the aspect of conversion. The same goes for forest degradation. You will find more details on the concept of forest degradation as part of the third iteration of FAQ. These have been developed in close cooperation with the Member States, ensuring a uniform understanding of important provisions.

The development of the Information System is well underway and a simple and userfriendly system will be fully functioning when the EUDR rules start to apply. It will be finetuned over time as implementation advances and taking into account needs of operators and competent authorities. You can find further information, such as the API technical specifications, on our website. $(^1)$

We continue to facilitate dialogue with stakeholders and partner countries through frequent meetings of the Multi-Stakeholder Platform on Deforestation, addressing key issues such as traceability and smallholders' challenges, and sharing updates on recent developments. We are pleased that Australia is participating in the Platform meetings and look forward to future engagements and exchanges through this format as implementation advances.

While we are fully aware that this is a demanding period for all engaged in the preparations for the entry into application of the Regulation, we cannot stress enough the encouraging progress we are seeing on the ground. We should now focus on getting everyone ready for implementation and use the time that remains in the best possible way.

We remain available to our partners in this process and look forward to working with you on the successful implementation of the Regulation to ensure deforestation-free agricultural supply chains, in line with our shared commitments to halt and reverse the forest loss by 2030.

Yours faithfully,

s 22(1)(a)(ii)

c.c: s 22(1)(a)(ii) s 22(1)(a)(ii) s 22(1)(a)(ii) s 22(1)(a)(ii) s 22(1)(a)(ii)

s 22(1)(a)(ii)

^{(&}lt;sup>1</sup>) <u>The Deforestation Due Diligence Registry - European Commission (europa.eu)</u>.

s 22(1)(a)(ii)

From:	s 22(1)(a)(ii) s 22(1)(a)(ii)		
Sent:	Friday, 6 September 2024 6:28 PM		
То:	s 22(1)(a)(ii)		
Subject:	RE: [EXTERNAL] Meeting Request: Commission with Australian and Canadian		
	Government and Hides and Skins Industry - EUDR - Friday 20 September		
	[SEC=OFFICIAL]		

CAUTION: This email originated from outside the organisation. Do not click links or open attachments unless you recognise the sender.

Dear^{s 22(1)(a)(ii)}

I just would like to inform you that most probably the meeting will be at 11am. A confirmation will follow shortly.

Best regards, s 22(1)(a)(ii)

From: s 22(1)(a)(ii)Sent: Wednesday, September 4, 2024 5:08 PMTo: s 22(1)(a)(ii)(ENV)Subject: RE: [EXTERNAL] Meeting Request: Commission with Australian and Canadian Government and Hides andSkins Industry - EUDR - Friday 20 September [SEC=OFFICIAL]

OFFICIAL

Thank you ^{s 22(1)(a)(ii)} Best, ^{s 22(1)(a)(ii)}

From: s 22(1)(a)(ii) s 22(1)(a)(ii)
Sent: Wednesday, September 4, 2024 5:05 PM
To: s 22(1)(a)(ii) s 22(1)(a)(ii)
Subject: RE: [EXTERNAL] Meeting Request: Commission with Australian and Canadian Government and Hides and Skins Industry - EUDR - Friday 20 September [SEC=OFFICIAL]

CAUTION: This email originated from outside the organisation. Do not click links or open attachments unless you recognise the sender.

Thank you ^{\$22(1)(a)(i)} I sent a reminder to the unit in charge of the regulation. Best regards, \$ 22(1)(a)(ii)

From: s 22(1)(a)(ii) s 22(1)(a)(ii)Sent: Wednesday, September 4, 2024 12:55 PMTo: s 22(1)(a)(ii) (ENV) s 22(1)(a)(ii)Subject: RE: [EXTERNAL] Meeting Request: Commission with Australian and Canadian Government and Hides andSkins Industry - EUDR - Friday 20 September [SEC=OFFICIAL]

OFFICIAL

Hi ^{s 22(1)(a)(ii)}

Please find attached a letter from our Hides and Skins industry to s 22(1)(a)(ii) for your information, in case this takes some time to make it out of her office to you and colleagues.

Also a polite check-in on this meeting request, as our industry and Canadian industry colleagues have booked flights and accommodation for Brussels on the basis this meeting will go ahead on this date.

With best wishes s 22(1)(a)(ii)

From: s 22(1)(a)(ii) s 22(1)(a)(ii) Sent: Tuesday, August 27, 2024 5:10 PM

To: s 22(1)(a)(ii) s 22(1)(a)(ii)

Subject: [EXTERNAL] RE: Meeting Request: Commission with Australian and Canadian Government and Hides and Skins Industry - EUDR - Friday 20 September [SEC=OFFICIAL]

CAUTION: This email originated from outside the organisation. Do not click links or open attachments unless you recognise the sender.

Dear^{s 22(1)(a)(ii)}

Thank you for your email.

We will provide you with a response as soon as possible.

Best regards, s 22(1)(a)(ii)

From: s 22(1)(a)(ii)	s 22(1)(a)(ii)			
Sent: Tuesday, August 27, 2024 11:47 AM				
To: s 22(1)(a)(ii) (ENV) s 22(1)(a)(ii)				
Cc: s 22(1)(a)(ii)	(ENV) s 22(1)(a)(ii)	s 22(1)(a)(ii)	(ENV)	
s 22(1)(a)(ii)	s 22(1)(a)(ii) (AGRI)	s 22(1)(a)(ii)		s 22(1)(a)(ii)
(AGRI) s 22(1)(a)(ii)	s 22(1)(a)(ii)	(TRADE) s 22(1)(a)(ii)		s 22(1)(a)(ii)
s 22(1)(a)(ii)	s 22(1)(a)(ii) s 22(1)(a)(ii) s 2	22(1)(a)(ii)	
s 22(1)(a)(ii)	s 22(1)(a)(ii)	s 22(*	1)(a)(ii)	(ENV)
s 22(1)(a)(ii)				

Subject: RE: Meeting Request: Commission with Australian and Canadian Government and Hides and Skins Industry - EUDR - Friday 20 September [SEC=OFFICIAL]

OFFICIAL

Dear s 22(1)(a)(ii)

Apologies for this second email today, but I am delighted to confirm this meeting request is now also on behalf of the Canadian Government and Canadian Hides and Skins industry.

Canada shares a very similar position to Australia with respect to this matter, and so we would welcome the opportunity to discuss the EUDR and our activities and views collectively with you.

s 22(1)(a)(ii) the Canadian Agriculture Counsellor, is cc'd into this email.

From: s 22(1)(a)(ii)Sent: Tuesday, August 27, 2024 9:57 AMTo: s 22(1)(a)(ii)Cc: s 22(1)(a)(ii) s 22(1)(a)(ii)s 22(1)(a)(ii) s 22(1)(a)(ii)

Subject: RE: Meeting Request: Commission with Australian Government and Hides and Skins Industry - EUDR - Friday 20 September [SEC=OFFICIAL]

OFFICIAL

Dear s 22(1)(a)(ii)

I write to kindly follow-up on my request below.

I appreciate we are still in August and the European summer break, however your response will help with our industry planning their broader visit to Europe.

With best wishes s 22(1)(a)(ii)

From: s 22(1)(a)(ii)Sent: Monday, August 19, 2024 3:30 PMTo: s 22(1)(a)(ii)Cc: s 22(1)(a)(ii) s 22(1)(a)(ii)s 22(1)(a)(ii) s 22(1)(a)(ii)

Subject: Meeting Request: Commission with Australian Government and Hides and Skins Industry - EUDR - Friday 20 September [SEC=OFFICIAL]

OFFICIAL

Dear s 22(1)(a)(ii)

I trust this email finds you well at the end of the European summer. I am writing on behalf of the Australian Hides and Skins industry to seek a meeting with yourself and Commission colleagues, on Friday 20 September, regarding the EU's Deforestation Regulation.

Australia is deeply committed to the objectives of the EU Deforestation Regulation, and our Hides and Skins industry has been working diligently to implement systems to meet the obligations.

However, there are significant challenges to this, and this meeting would be an opportunity to showcase the work our industry has done, as well as that of the Australian Government to support them, as well as raising our concerns.

I have cc'd in DG AGRI and DG Trade colleagues, in the event you may wish to make this a joint meeting. We are at your disposal however should you wish to meet separately.

I look forward to your advice as soon as feasible, on this important matter.

With best wishes

LEX 33330 s 22(1)(a)(ii)



s 22(1)(a)(ii) Counsellor | Agriculture, Fisheries & Forestry

Australian Mission to the EU & NATO, Embassy to Belgium & Luxembourg Avenue des Arts 56, 1000 Brussels s 22(1)(a)(ii) | s 22(1)(a)(ii)

s 22(1)(a)(ii)

From:	s 22(1)(a)(ii) s 22(1)(a)(ii)			
Sent:	Friday, 20 September 2024 5:32 PM			
To:	s 22(1)(a)(ii)			
Cc:	s 22(1)(a)(ii) s 22(1)(a)(ii) s 22(1)(a)(ii) s 22(1)(a)(ii)			
	s 22(1)(a)(ii) s 22(1)(a)(ii)			
Subject:	RE: [EXTERNAL] Meeting Request: Commission with Australian Government and			
	Hides and Skins Industry - EUDR - Friday 20 September [SEC=OFFICIAL]			
Attachments:	AHSLEA Sustainability Framework Information Sheet.pdf; AHSLEA Presentation EU Visit September 2024.pptx			

OFFICIAL

Dear ^{s 22(1)(a)(ii)}

Please find attached a presentation and short 2 page summary from the Australian industry.

We will briefly cover the presentation at our meeting today, but can provide a few hard copies at the time to save with having to manage IT systems.

We look forward to seeing you later this morning.

Kind regards, ^{s 22(1)(a)(ii)}

From: s 22(1)(a)(ii)Sent: Monday, September 16, 2024 3:51 PMTo: s 22(1)(a)(ii) s 22(1)(a)(ii)Cc: s 22(1)(a)(ii) s 22(1)(a)(ii)s 22(1)(a)(ii) s 22(1)(a)(ii)s 22(1)(a)(ii) s 22(1)(a)(ii)s 22(1)(a)(ii)</tr

OFFICIAL

Dear ^{s 22(1)(a)(ii)}

Many thanks for your email.

The delegation will consist of:

s 22(1)(a)(ii) Canada (Government) - s 22(1)(a)(ii) s 22(1)(a)(ii) Canada (Industry) - s 22(1)(a)(ii) s 22(1)(a)(ii) Australia (Government) - s 22(1)(a)(ii) s 22(1)(a)(ii) Australia (Government) - s 22(1)(a)(ii) s 22(1)(a)(ii) Australia (Industry) - s 22(1)(a)(ii) s 22(1)(a)(ii) Australia (Industry) - s 22(1)(a)(ii)

I will confer with ^{s22(1)(a)(ii)} on questions and respond as soon as I can.

Best, ^{s 22(1)(a)(ii)}

From: s 22(1)(a)(ii)s 22(1)(a)(ii)Sent: Monday, September 16, 2024 3:47 PMTo: s 22(1)(a)(ii)s 22(1)(a)(ii)Cc: s 22(1)(a)(ii) s 22(1)(a)(ii)s 22(1)(a)(ii) s 22(1)(a)(ii)s 22(1)(a)(ii)s 22(1)(a)(ii) s 22(1)(a)(ii)s 22(1)(a)(ii)s 22(1)(a)(ii) s 22(1)(a)(ii)s 22(1)(a)(ii)s 22(1)(a)(ii) s 22(1)(a)(ii)

s 22(1)(a)(ii)

Subject: RE: [EXTERNAL] Meeting Request: Commission with Australian Government and Hides and Skins Industry - EUDR - Friday 20 September [SEC=OFFICIAL]

CAUTION: This email originated from outside the organisation. Do not click links or open attachments unless you recognise the sender.

Dear s 22(1)(a)(ii)

I wanted to follow up on your below email and whether you can provide us with an attendee list, so we can send ensure that all participants will have access to the premises this Friday.

Additionally, should there be specific questions you would like us to address, feel free to share them with us in advance.

All the best and looking forward to the meeting,

s 22(1)(a)(ii)

s 22(1)(a)(ii)



European Commission Directorate-General for Environment Planetary Common Goods, Universal Values & Environmental Security DG ENV.F.1 s 22(1)(a)(ii) 1049 Brussels, Belgium s 22(1)(a)(ii) s 22(1)(a)(ii)

Website: http://ec.europa.eu/environment Follow us on:

From: s 22(1)(a)(ii) s 22(1)(a)(ii)Sent: Friday, September 6, 2024 5:22 PMTo: s 22(1)(a)(ii) (ENV) s 22(1)(a)(ii)Cc: s 22(1)(a)(ii) (ENV) s 22(1)(a)(ii)s 22(1)(a)(ii) (ENV) s 22(1)(a)(ii)s 22(1)(a)(ii) (ENV) s 22(1)(a)(ii)s 22(1)(a)(ii) (ENV) s 22(1)(a)(ii)

s 22(1)(a)(ii) (AGRI) s 22(1)(a)(ii) s 22(1)(a)(ii) (ENV)

Subject: RE: [EXTERNAL] Meeting Request: Commission with Australian Government and Hides and Skins Industry - EUDR - Friday 20 September [SEC=OFFICIAL]

OFFICIAL

Many thanks for your email and your suggestion of 11am, Friday 20th September.

This time would suit us well. We will provide an attendee list early next week.

With best wishes s 22(1)(a)(ii)



s 22(1)(a)(ii) Counsellor |Agriculture, Fisheries & Forestry

Australian Mission to the EU & NATO, Embassy to Belgium & Luxembourg Avenue des Arts 56, 1000 Brussels s 22(1)(a)(ii) | s 22(1)(a)(ii)

From: s 22(1)(a)(ii)s 22(1)(a)(ii)Sent: Friday, September 6, 2024 5:03 PMTo: s 22(1)(a)(ii)s 22(1)(a)(ii)

CAUTION: This email originated from outside the organisation. Do not click links or open attachments unless you recognise the sender.

Dear s 22(1)(a)(ii)

Many thanks for your message and the meeting request.

We would be happy to meet the Australian Hides and Skins Industry on 20 September together with DG AGRI colleagues. Detailed participation from our side would be confirmed closer to date, with some colleagues potentially joining online.

We would suggest for the meeting to take place **at 11:00 on 20 September** (location: Avenue d'Auderghem 19). Feel free to propose a different time if this does not suit you.

Kind regards

s 22(1)(a)(ii)

s 22(1)(a)(ii)



European Commission Directorate-General for Environment Planetary Common Goods, Universal Values & Environmental Security DG ENV.F.1 s 22(1)(a)(ii) 1049 Brussels, Belgium

3

LEX 33330 s 22(1)(a)(ii) s 22(1)(a)(ii)

Website: http://ec.europa.eu/environment

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From: s 22(1)(a)(ii) s 22(1)(a)(ii) Sent: Monday, August 19, 2024 3:34 PM To: AGRI G3 <<u>AGRI-G3@ec.europa.eu</u>>; ENV F2 <<u>ENV-F2@ec.europa.eu</u>>; ENV F- ARES <<u>ENV-U09-</u>

ADONIS@ec.europa.eu>

Subject: FW: Meeting Request: Commission with Australian Government and Hides and Skins Industry - EUDR - Friday 20 September [SEC=OFFICIAL]

OFFICIAL

Dear Commission colleagues

I am forwarding on this request, as outlined in your colleagues' out of office emails.

I look forward to your response.

Regards, s 22(1)(a)(ii)

From: s 22(1)(a)(ii) Sent: Monday, August 19, 2024 3:30 PM To: s 22(1)(a)(ii) Cc: s 22(1)(a)(ii) ^{s 22(1)(a)(ii)} (AGRI) s 22(1)(a)(ii) s 22(1)(a)(ii)

Subject: Meeting Request: Commission with Australian Government and Hides and Skins Industry - EUDR - Friday 20 September [SEC=OFFICIAL]

OFFICIAL

Dear s 22(1)(a)(ii)

I trust this email finds you well at the end of the European summer. I am writing on behalf of the Australian Hides and Skins industry to seek a meeting with yourself and Commission colleagues, on Friday 20 September, regarding the EU's Deforestation Regulation.

Australia is deeply committed to the objectives of the EU Deforestation Regulation, and our Hides and Skins industry has been working diligently to implement systems to meet the obligations.

However, there are significant challenges to this, and this meeting would be an opportunity to showcase the work our industry has done, as well as that of the Australian Government to support them, as well as raising our concerns.

I have cc'd in DG AGRI and DG Trade colleagues, in the event you may wish to make this a joint meeting. We are at your disposal however should you wish to meet separately.

I look forward to your advice as soon as feasible, on this important matter.

With best wishes



s 22(1)(a)(ii) Counsellor | Agriculture, Fisheries & Forestry

Australian Mission to the EU & NATO, Embassy to Belgium & Luxembourg Avenue des Arts 56, 1000 Brussels s 22(1)(a)(ii) | s 22(1)(a)(ii)



AHSLEA Sustainability Overview

THE AUSTRALIAN HIDE, SKIN AND LEATHER INDUSTRY

The Australian Hide Skin and Leather Exporters Association (AHSLEA) is the national membership body representing the interests of the major exporters of Australian cattle and calf hides, sheep and lamb skins, kangaroo skins, and goat skins.

Key facts:

- Australia's strict environmental protection and land management regulations ensure that the Australian leather industry is amongst the most sustainable in the world.
- The industry saves around 8 million cattle hides and over 26 million sheep, goat and kangaroo skins from landfill every year.
- AHSLEA members only source from government-registered meat processors operating within Australia's strict animal welfare requirements.

AHSLEA SUSTAINABILITY FRAMEWORK

AHSELA has developed a comprehensive sustainability framework, reinforcing the industry's commitment to economic, social, and environmental responsibility.

The framework was developed in collaboration with key stakeholders, an extensive review of existing frameworks in the agriculture sector, and a detailed assessment of industry practices and benchmarks.



Key Commitments under the Australian Hide Skin and Leather Sustainability Framework



- Environmental impact: Addressing GHG emissions, chemical management, water usage, and waste.
- People and community: Prioritising health and safety, talent development, labour rights, and community contributions.
- Economic resilience: Ensuring market access, profitability, and climate resilience.
- Value chain innovation: Enhancing traceability, animal welfare, biodiversity, reducing deforestation and increasing collaboration across the value chain.

Progress with meeting EU Deforestation Regulations

KEY POINTS

The Australian HIDE, SKIN AND LEATHER Industry:

- Fully endorses the aims of the EUDR.
- Operates within a federal and state legal framework that is closely aligned with EUDR objectives and delivers similar outcomes.
- Is working with stakeholders across the sector to deliver a fit for purpose whole of life traceability solution.
- Is addressing complexities such as data privacy restrictions on geolocation integrity issues.
- Requires more time to implement a fully functioning system.

STATUS OF TRACING SYSTEMS FOR EUDR

- Two projects are underway to meet the data and tracing requirements of the EUDR.
- The complexity of the hide value chain being a by-product of the beef industry means that more time is required to implement a robust traceability system. Hides are received after slaughter and currently without access to lifetime cattle movement data.
- Fit for purpose EUDR traceability systems need to be able to provide more accurate, granular data as well as a deforestation status credential for all hides intended for the EU.



The Australian Hide Skin and Leather Sustainability Framework effectively conveys its sustainability impacts and performance to key stakeholders, including customers and regulators.

PROJECTS UNDERWAY

Food Agility AgTrace

A pilot is currently underway to share deforestation-free credentials and associated geolocation data for beef and hides.

This initiative will involve exporting a small consignment before the EUDR enforcement deadline and testing data transfer with the proposed EU IT platform.

Integrity Systems Company (ISC)

Updates to the Australian red meat industry's three key on-farm assurance and throughchain traceability programs managed and delivered by Integrity Systems (ISC).

- ISC has been working with key Australian industry groups on how National Livestock Identification System (NLIS) and Livestock Production Assurance (LPA) can assist in meeting the EUDR.
- The focus has been how to provide EU importers with information required for due diligence statements. The primary focus is on enabling the provision of geolocations where cattle have been from birth through to slaughter.





ahslea AUSTRALIAN HIDE, SKIN & LEATHER EXPORTERS ASSOCIATION

EUDR & Sustainability Overview

September 2024

About us

The Australian Hide Skin and Leather

Exporters Association (AHSLEA) is the national membership body representing the interests of the major exporters of Australian cattle and calf hides, sheep and lamb skins, kangaroo skins, and goat skins.

Key facts:

- Australia's strict environmental protection and land management regulations ensure that the Australian leather industry is amongst the most sustainable in the world.
- The industry saves around 8 million cattle hides and over 26 million sheep, goat and kangaroo skins from landfill every year.
- AHSLEA members only source from government-registered meat processors with Australia's strict animal welfare legislation.

Industry size

AHSLEA members employs over 1400 people at 43 leather processing facilities, and export to 39 markets internationally.

Exports are valued at A\$560m per year with about 7% of exports direct into the EU.

In terms of cattle hides, Australia exports A\$321 million of cattle hides each year of which A\$36 million is destined for the EU – mainly Italy.

For the more highly value-added hide products (wetblue cattle hides) A\$67 million are exported with A\$35 million to the EU.



Approach to Sustainability

AHSLEA has developed a comprehensive sustainability framework for the industry. This framework confirms the industry's commitment to economic, social, and environmental responsibility.

The framework was developed in collaboration with key stakeholders, an extensive review of existing frameworks in the agriculture sector, and a detailed assessment of industry practices and benchmarks.

Key commitments under the Australian Hide Skin Leather Sustainability Framework



Environmental impact: Addressing GHG emissions, chemical management, water usage, and waste.



People and community: Prioritising health and safety, talent development, labour rights, and community contributions.



Economic resilience: Ensuring market access, profitability, and climate resilience.



Value chain innovation: Enhancing traceability, animal welfare, biodiversity, reducing deforestation and increasing collaboration across the value chain

AHSLEA Sustainability Framework Commitments

ිදි Supply chain

 Investing in value chain traceability that improves the transparency of sustainability credentials from farm to finished product. Traceability to commence with wetblue hides then brinecured hides and sheep skins in subsequent years.



 Working with suppliers to support a net positive impact on biodiversity from our rural operations commencing with benchmarking in late 2024 and reporting on activities supporting biodiversity onwards.



 Continual improvement to support health, safety and wellbeing for industry workers. Securing a pathway of skilled workers for the industry, and commitment to having a positive impact in the communities in which we operate.



 A focus on further reducing our GHG emissions commencing with a benchmarking survey in late 2024 followed by a review of Scope 1 & 2 emissions in 2025 and the setting of improvement targets.

🔿 Water

 Minimise water consumption while increasing recovery and reuse rates starting with a benchmarking survey in late 2024 and targets for reducing overall water consumption from 2025 and the treatment or reuse of all wastewater.



 AHSLEA is committed to 100% compliance with EPA regulations and licence regulations, and zero use of restricted chemicals on an ongoing basis.



 Reducing waste to landfill and increasing circular economy innovation within the industry. An initial benchmarking survey will be completed in late 2024 with reduction targets including those for single-use plastics set from 2025.

Progress with meeting EU Deforestation Regulations

Forest Management Alignment

Australia is strongly aligned with the EU and Italy's forest management objectives to reduce deforestation, enhance biodiversity, and mitigate climate change.

Our federal legislation, including the Environment Protection and Biodiversity Conservation Act and the Illegal Logging Prohibition Act, along with state forest management laws, provides a framework that parallels the intentions of the EUDR.

Additionally, Cattle Australia has been working extensively on a Land Management Commitment to:

- Establish a national framework that meets international regulatory and reporting requirements (EUDR, SBTi).
- Enhance transparency and traceability across the supply chain for customers and consumers.
- Highlight the importance of these credentials to all cattle producers.



European Union Deforestation Regulations

The Australian Hide Skin and Leather Exporters Association:

- Fully endorses the aims of the EUDR.
- Is working with stakeholders across the sector to deliver a fit-for-purpose whole of life traceability solution.
- Is addressing complexities such as data privacy restrictions on geolocation integrity issues.
- Requires more time to implement a fully functioning system.



Status of tracing systems for EUDR

In summary:

- Two projects are underway to meet the data and tracing requirements of the EUDR.
- Both need time potential solutions Fully endorses the aims of the EUDR.
- There are a number of challenges impacting a final implementation of the tracing systems

Who is developing EUDR compliant tracing systems?



An Australian Government Cooperative Research Centre <u>www.foodagility.com</u>



ISC manages and delivers the Australian red meat industry's three key on-farm assurance and throughchain traceability programs www.integritysystems.com. au

Status of tracing systems

- Pilot underway to share deforestation free credentials and associated geolocation data for beef and hides.
- The pilot will involve exporting a small consignment prior to the EUDR enforcement deadline and testing data transfer with the proposed EU IT platform.

Status

• Opt-in - producers must agree to share relevant information.

foodagility

- Privacy producers can manage and control data sharing.
- Geolocation must be provided to enable EU market access.
- Deforestation definitions includes compilation of information to highlight Australian land management legislation which is consistent with EUDR objectives.
- Verification of deforestation free status choice of mapping system by producer/processor.
- Due Diligence Statement this trial will generate data which will enable geolocation and deforestation status for each hide included in this trial consignment.

Status of tracing systems



Three elements make up the current livestock traceability system in Australia by Integrity Systems:

- Livestock Production Assurance (LPA) on-farm assurance program
- National Vendor Declaration (NVD) required for all livestock movements
- National Livestock Identification System (NLIS - uses an eartag and Property Identification Code (PIC) to trace animals through their lifetime).

Status

- ISC has been working with the following groups on how NLIS and LPA can assist in meeting the EUDR:
 - Department of Agriculture Forestry and Fisheries
 - Cattle Australia
 - Australian Meat Industry Council
 - Australian Lot Feeders Association
 - AHSLEA
 - Major meat and hide processors.
- The current focus is on enabling the provision of geolocations where cattle have been from birth through to slaughter.

Continued...

Status of tracing systems

Status (continued)

- ISC is working to develop via the LPA Program a process which will enable livestock producers to:
 - Provide and permission the sharing of geolocations that represents PICs
 - Provide permission for ISC to share geolocations within the supply chain where product is intended for export to the EU.
- ISC can then provide a tool for exporters to search the NLIS tag numbers of cattle to return the relevant geolocations.
- This model can be further developed to integrate deforestation assessments to generate a deforestation free status clearance over the medium term.



Contact

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s 22(1)(a)(ii)

From:	ENV-DEFORESTATION@ec.europa.eu
Sent:	Wednesday, 4 December 2024 10:28 PM
То:	s 22(1)(a)(ii)
Subject:	RE: [EXTERNAL] Invitation to the 30th meeting of the Deforestation Platform of 6
-	December 2024 [SEC=OFFICIAL]

CAUTION: This email originated from outside the organisation. Do not click links or open attachments unless you recognise the sender.

Dear^{s 22(1)(a)(ii)}

This is well noted!

Best regards,

The ENV DEFORESTATION Team

From: s 22(1)(a)(ii) s 22(1)(a)(ii)

Sent: Wednesday, December 4, 2024 12:04 PM To: ENV DEFORESTATION <ENV-DEFORESTATION@ec.europa.eu> Subject: RE: [EXTERNAL] Invitation to the 30th meeting of the Deforestation Platform of 6 December 2024 [SEC=OFFICIAL]

OFFICIAL

Good morning Deforestation Team

Can I please change my attendance tomorrow to online? I have received the Webex invitation.

With thanks s 22(1)(a)(ii)

From: ENV-DEFORESTATION@ec.europa.eu <ENV-DEFORESTATION@ec.europa.eu> Sent: Monday, October 21, 2024 2:04 PM To: s 22(1)(a)(ii) s 22(1)(a)(ii) Subject: RE: [EXTERNAL] Invitation to the 30th meeting of the Deforestation Platform of 6 December 2024 [SEC=OFFICIAL]

CAUTION: This email originated from outside the organisation. Do not click links or open attachments unless you recognise the sender.

Dear s 22(1)(a)(ii)

Your in-person participation is well noted.

Best regards,

The ENV DEFORESTATION Team

From: s 22(1)(a)(ii) s 22(1)(a)(ii) Sent: Monday, October 21, 2024 10:38 AM To: ENV DEFORESTATION <<u>ENV-DEFORESTATION@ec.europa.eu</u>> Subject: RE: [EXTERNAL] Invitation to the 30th meeting of the Deforestation Platform of 6 December 2024 [SEC=OFFICIAL]

OFFICIAL

Dear ENV Deforestation Team

Thank you for the invitation, I would like to attend on behalf of Australia, in person.

Regards,^{s 22(1)(a)(ii)}

From: ENV-DEFORESTATION@ec.europa.eu <ENV-DEFORESTATION@ec.europa.eu>

Sent: Friday, October 18, 2024 5:34 PM Subject: [EXTERNAL] Invitation to the 30th meeting of the Deforestation Platform of 6 December 2024

CAUTION: This email originated from outside the organisation. Do not click links or open attachments unless you recognise the sender.

Dear Madam/Sir,

Please find attached the invitation to the 30th meeting of the Deforestation Platform, which will take place on 6 December in hybrid mode. Could you please confirm the participation of maximum one representative per non-EU country or international organisation (be it online or in person) by email to <u>ENV-DEFORESTATION@ec.europa.eu</u> by COB on 28 November?

Should you have any question which is not addressed in the invitation letter, please do not hesitate to send an email to <u>ENV-DEFORESTATION@ec.europa.eu</u>.

Thank you and best regards,

The ENV Deforestation Team

s 22(1)(a)(ii)

From: Sent: To: Cc: Subject: Attachments: s 22(1)(a)(ii) Tuesday, 4 March 2025 4:29 PM s 22(1)(a)(ii) s 22(1)(a)(ii) s 22(1)(a)(ii) RE: validation of Global Forest Cover map for year 2020 [SEC=OFFICIAL] 2024_S4P_Validation_Report_V01_Australia_comments.pdf

OFFICIAL

Dear s 22(1)(a)(ii)

Congratulations on the draft report on validation of the Global Forest Cover map for year 2020 and thank you for the opportunity to review it.

I have added my suggestions as comments in attached and would be happy to clarify the comments where you find them unclear – just let me know.

Regards s 22(1)(a)(ii)

s 22(1)(a)(ii)

Scientist |National Forest Inventory Data Manager |Natural Resources Branch| Forest and Land Sciences Program|ABARES

Desk s 22(1)(a)(ii) Mob. s 22(1)(a)(ii) Email s 22(1)(a)(ii) @aff.gov.au

Australian Bureau of Agricultural and Resource Economics and Sciences Department of Agriculture, Fisheries and Forestry 70 Northbourne Avenue, Canberra, ACT 2601, Australia GPO Box 858 Canberra ACT 2601 Australia

agriculture.gov.au/abares agriculture.gov.au/abares/forestsaustralia

OFFICIAL


Dear colleagues,

Please find attached the report on the validation for the Global Forest Cover map for the year 2020 for your review. The tentative tile is: "Generation and use of a validation data set for global forest cover maps". The report has 2 main parts: 1) a description of the assessment protocol and 2) the quantitative analysis of the map against the reference data.

As the Word file is big, I will send you in a separate email smaller the pdf file, hoping that one makes it into your inbox. I kindly ask you for your feedback in track change and/or with comments by 3 March 2025. Soon after we intend to submit this report to the JRC-internal review. Eventually this report will become publically available.

I kindly ask you to carefully review your affiliation in the list of authors on p5/6 and add information where I left comments behind your name. Some of you also find a question if other team members should be authors or only be acknowledged, in either case I will need their affiliations.

Importantly, please check Table 2 on p24/25 which lists interpreters by name. Please let me know if you have concerns being listed by name (including your colleagues) as interpreters for a specific region.

Please note that the document is still in a draft state. For instance, the references and the reference list is not in sync and not complete (you find different colouring throughout the document which is for myself). We may still change some details change figures or consolidate statistics on our end, yet we do not plan to add new sections.

If you see major concerns with the content, please send me an email. I will reply next week (currently I am on leave) and will set up a meeting.

Kind regards, ^{s 22(1)(a)(ii)}

To add Front covers to your document use Generate Cover pages function in Pubsy

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Abstract

The accuracy assessment is an integral part of each mapping project. This technical report presents the assessment protocol to estimate the accuracy of global forest maps. A group of experienced experts from within and outside the JRC interpret 21,752 samples. We assessed the Global Forest Cover map for the year 2020 (GFC2020), a novel spatial representation of forest presence or absence at 10m spatial resolution designed to support the implementation of the EU Regulation on deforestation-free supply chains (EUDR, Regulation (EU) 2023/1115). Results show an overall accuracy of 91% with a commission error for forest (areas erroneously mapped as forest) of 18% and an omission error (areas missed to be classified as forest) of 8%. More detailed analysis reveals the reasons for misclassification, e.g. the presence of other wooded land with very sparse tree cover or a mix of shrubs and bushes that can be easily confused with forest or ambiguity in the geolocation precision of the sample or the forest boundary. The spatial analysis shows clusters of misclassified samples, and thus lower accuracies in regions of open dry forests, e.g. in Eastern Brazil or central Australia.

Acknowledgements

We are grateful for technical support, feedback and comments received during numerous discussion from (in alphabetic order): We thank?? for their valuable comments to improve this report.

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5

Executive summary

Policy context

The EU Regulation on deforestation-free supply chains (Regulation (EU) 2023/1115, abbreviated "EUDR") sets out rules and obligation for a set of commodities (cattle, cocoa, coffee, oil palm, rubber, soya, wood) and derived products, with the objective to reduce global deforestation and forest degradation induced by the EU. Deforestation-free means that commodities and products do not originate from land that was subject to deforestation or forest degradation after 31 December 2020. Operators and traders putting or making available above-mentioned commodities and products on the EU market or exporting from it have to exercise due diligence by providing information and data, including the geolocation of the sourcing areas. In this context, spatial information, i.e. about the land use in 2020 could be highly beneficial. To this end, the JRC produced a map on Global Forest Cover for the year 2020 (abbreviated GFC2020) which will be subject to occasional updates e.g., when improved data sets become available.

Key conclusions

The JRC developed an assessment protocol for forest/non-forest interpretation from high spatial resolution image sources, including the characterization of non-forest land that sheds light on common misclassification errors. This protocol can be expressed in a decision tree which can be easily explained and followed by interpreters. We also set out a double blind interpretation of some samples, which on the one hand ensured high quality interpretations for labels with low confidence and on the other hand allowed to assess the agreement among interpreters.

The definition of forest in the reference set follows the EUDR, which broadly adopted the forest definition from the FAO Global Forest Resources Assessment. This reference set will be used to assess the current and forthcoming versions of the Global Forest Cover map for the year 2020, and may be utilized for the assessment of other global forest maps with similar spatial characteristics for the year 2020.

The global map accuracy is 91%, with a higher risk for forest area overestimation (18%) than underestimation (8%). These global estimates, however, do not allow conclusions about map accuracies at regional or local level. Global map assessment includes all land areas, including land like deserts where there is clearly no forest or dense forest areas where there is no doubt about the forest presence. Our analysis shows that map accuracy decreases for dry and open forests or other locations where forest mapping is challenging.

Confusions with agricultural tree plantation is still present but was reduced by targeted improvements in the second version of GFC2020. The global forest area is 4,562 Mio ha, which is 12% more than the international reference of the FAO Forest Resources Assessment for the year 2020 (4,058 Mio ha). Considering the intended map use as a support tool for operators and traders in the risk assessment of the EUDR, the overestimation of the forest area is a minor concern. In any case the JRC recommends to use the Global Forest Cover map for the year 2020 as an initial filter which should be enriched with complementary data or followed up by more detailed checks by operators against other sources.

Main findings

This report presents a robust protocol for forest/non-forest sample interpretation, including the categorization of areas that are not forest which allow to understand the commission error, i.e. areas falsely classified as forest in the map (see infographic below).



The reference set with 21,752 samples was used to assess the second version of Global Forest Cover map for the year 2020 (GFC2020). The overall map accuracy is 91%, which is very high for global products. The commission error was 18% and thus higher than the probability that forest is omitted in the map (8%).

More detailed assessments inform about the reasons for misclassification, by theme and in space. Commission errors in GFC2020 were frequent for samples labelled other wooded land in the reference data, a land use class that includes very sparse trees or shrubs, scrubs and bushes that may appear like small trees from a distance. Another frequent confusion may be attributed to geolocation for which the error could be two-fold: an incorrect delineation of the boundary between forest and non-forest in the map or a misalignment between reference data and the map. Spatially, errors are more frequent in open dry forests, e.g. in Eastern Brazil, in tropical Africa outside the rain forest zone, in central Australia, in Mediterranean Europe or in the ecotones between the boreal forest belt and tundra vegetation.

Related and future JRC work

The JRC will use this reference set for the assessment of any future forest map version for the year 2020. An update or revisit is not necessary as long as the cut-off date remains. This reference set could also inform the Copernicus Global Land Operations team on land cover about reference data quality and may trigger some reinterpretations.

Quick guide

This report has two main parts. The section on the methodology presents the sample design, the tools for high spatial resolution image interpretation, the assessment protocol and the statistical estimators. The assessment protocol is the heart and soul of any reference data set to understand either issues in reference data labelling – no reference data set is free of ambiguity – or mapping

errors. Therefore, this report dwells on important considerations in detail with illustrative examples. The second part presents the assessment of the Global Forest Cover map for the year 2020, mainly for version 2. This section also sheds light on the reasons for confusion and shows map accuracies or errors spatially.

1 Introduction

The EU Regulation on deforestation-free supply chains (Regulation (EU) 2023/1115, abbreviated "EUDR", EU 2023) sets out rules and obligation for a set of commodities (cattle, cocoa, coffee, oil palm, rubber, soya, wood) and derived products, with the objective to reduce global deforestation and forest degradation induced by the EU and thus mitigate the climate and biodiversity crisis. Above mentioned commodities and products may be placed or made available on the EU market or exported from it only if they are deforestation-free, legally produced and covered by a due diligence statement. Deforestation-free means that commodities and products do not originate from land that was subject to deforestation or forest degradation after 31 December 2020 (see Annex 1 for definitions of legal terms as set out in the EUDR). Due diligence needs to be exercised by operators and traders and includes a collection of information and data, including the geolocation of the sourcing areas as point or polygons if the area is larger than 4 hectares, a risk assessment and, if necessary, risk mitigation measures. Competent Authorities, that are designated institutions by Member States, will carry out checks on a certain percentage of due diligence statements and thus ensure compliance with the regulation. The regulation is in force since 29 June 2023 and will be applicable as of 30 December 2025¹.

Even though the Regulation does not specify how to undertake a risk assessment, spatial information about the land use in 2020 could be highly beneficial. To this end, the Directorate General on Environment tasked the Joint Research Center (JRC) via agreements between both institutions² to derive such information. The JRC responded with the map on Global Forest Cover for the year 2020 (abbreviated GFC2020). On 7 December 2023, the JRC launched the EU Observatory on Deforestation and Forest Degradation (COM 2023a) which is one of the EU support tools for implementing the EUDR. This EU Observatory hosts GFC2020³ (COM 2023b) among other maps and scientific data related to global forests, carbon fluxes, commodity flows and data processing tools. Bourgoin et al. (2024) and Colditz et al. (2024) document the mapping methodology and showed first analysis, including a preliminarily accuracy assessment based on an existing set of reference data. These reports also indicate the initial version 1 (V1) from 7 December 2023 shall be updated based on feedback from map users, new and revised input data. The improved map on Global Forest Cover for the year 2020 in version 2 (GFC2020 V2) was made available to the public on 6 December 2024. In addition, the JRC released a preliminary map (V0) of the Global Forest Types for the year 2020 (GFT2020), serving the risk assessment of forest degradation. To this end, the JRC gathered freely available spatial information to differentiate between primary forest, naturally regenerating forest and planted forest (including plantation forest) within the spatial extent of forest in GFC 2020 V1. Bourgoin et al. 2025 document the methodology for the second version of GFC2020 and the preliminary map of Global Forest Types for year 2020.

The accuracy of each map should be assessed by statistically sound approaches (<mark>Tyukavina 2024</mark>). So far, a set of 49,942 sample points from the 2015 IIASA Global Forest Management map (<mark>Lesiv</mark>

Recently the European Union adopted an amendment to Regulation (EU) 2023/1115 postponing the application of the regulation from 30 December 2024 to 30 December 2025 (EU 2024).

² Amendment to the Administrative Agreement ENV N° 09029901/2021/852710/AA/ENV.F.3 - JRC N° 35920 NFP, and Administrative Agreement ENV N°090201/2024/923161/AA/ENV.F.1 - JRC N° 36816 NFP
³ The ELL Observatory provider means to view GEC2020. The data can be downloaded from

³ The EU Observatory provides means to view GFC2020. The data can be downloaded from <u>https://forobs.jrc.ec.europa.eu/GFC</u> and accessed as asset on Google Earth Engine <u>https://developers.google.com/earth-engine/datasets/catalog/JRC_GFC2020_V1</u>.

et al. 2022) served as reference data. The preliminary assessment of the GFC 2020 map at version 1 against the IIASA forest management samples resulted in an overall accuracy of 76.6%, with commission and omission errors for forest being 4.8 and 39.7% (Bourgoin et al. 2024). The high omission and comparatively low commission errors were at odds with perception by external experts undertaking qualitative map assessment and reporting that the map tends to overestimate the forest area extent. The fact that the forest area in GFC2020 version 1 is 10% higher compared to the FAO Global Forest Resources Assessment (FRA, FAO 2020) supports the experts' perception. Besides the preliminary assessment not properly following the statistical protocols for accuracy assessment (Strahler et a. 2006, Tyukavina 2024), Bourgoin et al (2024) noted that several reference samples representing an area of 100m fell close to forest/non-forest edges in GFC2020 with 10m spatial resolution and that changes between 2015 (reference) and 2020 (GFC) introduce error in the assessment.

The objective of this report is to present the statistically sound validation of global forest maps for the year 2020. To this end, the JRC developed a protocol for interpretation forest/non-forest from high spatial resolution images and applied this protocol to 21,752 sample location from the 2015-2019 Global Copernicus Land Cover Product (CGLOPs). Reference data were used to assess the maps of global forest cover for the year 2020, mainly focussed on version 2. The outcomes inform the map users, namely the operators and traders in the phase of risk assessment and policy makers, about the quality of GFC2020 provided as EU support tool for implementing the EUDR.

2 Methodology

2.1 Sampling

This validation builds on the sample locations from the Copernicus Global Land Cover Product Validation for the year 2015 (Tsendbazar et al. 2021a, 2021b). Koeppen climate zones and human population density served as basic parameters for spatial sample distribution per continent, with the goal to draw sample from locations where the risk of misclassification is higher, e.g. in heterogeneous landscapes. Additional samples were drawn for rare classes (Tsendbazar et al. 2015). Figure 1 shows the geographical distribution of all 21,752 sample locations.

Figure 1. Geographical distribution of sample locations.



Source: Continental strata and sample locations: Tzendbazar et al. 2015; GISCO countries 2020: GISCO, 2020. Own elaboration.

Figure 2 illustrates graphically the sample for response data assignment. The validation of the 100m Copernicus Global Land Cover map for 2015 assessed each pixel by a primary sample unit (blue frame in Figure 2) matching the classified pixel, which was subdivided in 100 10x10m secondary sample units (yellow mesh). The top-left cell in the centre of the primary sample unit (red cell) was selected for validation of the 10m GFC2020 map.

Figure 2. Example of sample for response data assignment.



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Commented s 22(1)(a)(iii) <u>Towards operational validation of</u> annual global land cover maps - <u>ScienceDirect</u>

Commented \$ 22(1)(a)(ii) <u>Assessing global land cover</u> reference datasets for different user communities Source: **Tzendbazor et al. 2015**, modified. Note: the blue frame indicates the primary sample unit with a size of 100x100m, the yellow mesh has 100 10x10m cells and the red cell the selected cell for validation of the GFC2020 map.

2.2 Assessment tools

GeoWiki by IIASA was the main tool for response data viewing and collection of labels by interpreters. In most cases interpreters also consulted the high spatial resolution image time series for sample locations in Google Earth Pro and, checked nearby Google Street View photographs. In tropical regions some interpreters also used the JRC IMPACT toolbox to display data from Planet scope.

Figure 3 shows the functionalities of the IIASA Geowiki interface customized to the response data labelling protocol for the forest cover map. The left side shows basic information and allows to access additional assessment tools, the centre drapes the sample over an image source and the right side show the categories for labelling of the sample (opens and closes categories dynamically). Geowiki offers a range of response data/images (ESRI, Bing, Google, Sentinel, Planet, etc.).

Figure 3. IIASA Geowiki interface and functionalities for viewing response data and label collection by interpreters.



Figure 4 shows the Google Earth Pro interface with sample locations imported as kml file. The red quadrangle in the center depicts the 100x100m primary sample unit draped over a high resolution image with an underlying digital elevation model. The storage of samples by ID in ascending order in Geowiki allowes simple visualization of the same data in Google Earth Pro by simply selecting the next ID. The interpreters made ample use of the image history showing a time series of high

Lit of samples imported as kind ges in time base of times sample unit (red square of 100x100m) between velocities of times to the times of the times

Figure 4. Google Earth Pro interface and functionalities for viewing response data.

resolution data for the site and the possibility to view Google Street view. The latter could be useful to check tree height from photographs taken nearby or even relate information on photographs to somewhat more distant places via similarities of the texture in the high resolution images.

Source: Google Earth Pro, 2024. Own elaboration.

For samples in tropical and sub-tropical regions, mainly for countries covered by the UN REDD+ program, the status of forest cover for December 2020 can be analysed via time series of planet scope mosaics provided by NICFI (from 2020 onwards). The IMPACT toolbox provides a direct access to such mosaics through a dedicated viewer with enhanced contrast for display. Figure 5 shows the IMPACT interface for assessment.

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Figure 5. IMPACT toolbox interface and functionalities for viewing Planet scope mosaics.

Source: IMPACT toolbox, 2024. Own elaboration.

2.3 Assessment protocol

2.3.1 Definitions

The interpretation by experts requires an understanding of "forest" and more detailed forest classes or distinctions between other land uses. Table 1 shows the definition of "forest" in the EUDR (EU, 2023) and by the FAO (FAO, 2018); Annexes 1 and 2 contain definitions for other categories relevant for this study.

 $\textbf{Table 1.} \ \text{Definitions of forest in the EUDR and the FAO}$

EUDR Art 2(4), 2(5), 2(6)	FAO Terms and definitions		
(4) 'forest' means land	FOREST		
spanning more than 0,5	Land spanning more than 0.5 hectares with trees higher than 5 meters and		
hectares with trees higher	a canopy cover of more than 10 percent, or trees able to reach these		
than 5 metres and a canopy	thresholds in situ. It does not include land that is predominantly under		
cover of more than 10 %, or	agricultural or urban land use.		
trees able to reach those			
thresholds in situ, excluding	Explanatory notes		
land that is predominantly	1. Forest is determined both by the presence of trees and the absence of		
under agricultural or urban	other predominant land uses. The trees should be able to reach a		
land use;	minimum height of 5 meters in situ.		
(5) 'agricultural use' means	2. Includes areas with young trees that have not yet reached but which are		
the use of land for the	expected to reach a canopy cover of 10 percent and tree height of 5		
purpose of agriculture,	meters. It also includes areas that are temporarily unstocked due to		
including for agricultural	clear-cutting as part of a forest management practice or natural		
plantations and set-aside	disasters, and which are expected to be regenerated within 5 years.		

agricultural areas, and for		Local conditions may, in exceptional cases, justify that a longer time
rearing liveslock;	7	Indine is used.
(6) agricultural plantation	Э.	includes forest rodus, firebreaks and other small open areas; forest in
means land with tree		national parks, nature reserves and other protected areas such as those
stands in agricultural		of specific environmental, scientific, historical, cultural or spiritual
production systems, such as		interest.
fruit tree plantations, oil nalm plantations, olive	4.	Includes windbreaks, shelterbelts and corridors of trees with an area of more than 0.5 hectares and width of more than 20 meters
orchards and aproforestry	5	Includes abandoned shifting cultivation land with a regeneration of trees
systems where crons are	J.	that have or are expected to reach a capony cover of 10 percent and
arown under tree cover: it		tree height of 5 meters
includes all plantations of	6	Includes areas with manoroves in tidal zones regardless whether this
relevant commodities other	0.	area is classified as land area or not
than wood: agricultural	7	Includes rubber-wood, cork oak and Christmas tree plantations
nlantations are excluded	8	Includes areas with hamboo and palms provided that land use height
from the definition of	0.	and canony cover criteria are met
'foract'	0	and canopy cover chilena are mel.
TUTESL;	Э.	definition of "forest"
	10	Excludes tree stands in agricultural production systems, such as fruit
	10	tree plantations oil palm plantations olive orchards and agroforestry
		systems when crons are grown under tree cover Note: Some
		agrafaractay systems such as the "Taungya" system where crops are
		arown only during the first years of the ferest retation should be
		grown only during the first years of the forest folation should be
		LIASSITIEU AS TUTESI.

Source: EUDR: EU, 2023; FAO: FAO, 2018.

Both definitions are very similar. While the EUDR definition takes precedence for class labelling, the FAO definition is more detailed and attainable for image interpretation experts. It is evident that "forest" is defined by a set of physical thresholds (tree height > 5m, density > 10%, area > 0.5 ha) and land use requirements. It is important to note that all requirements have to be met, i.e. a plantation of agricultural trees does not qualify as forest even if the tree height, density and area criteria are met. In addition, the definitions include an aspirational element, i.e. the tree height reached at maturity or the regrowth of forest. This means that forest also includes land that is currently unstocked or where trees for forest land use are currently below the 5m threshold.

2.3.2 Introduction to the assessment protocol

Figure 6 shows the assessment protocol for reference data labelling. Experts assigned to each sample mutually exclusive classes in five fields⁴ and optionally documented specific issues in a comment box. In field "Forest", experts decided if a sample is forest or non-forest. Depending on this decision, a set of classes opened in field "Forest or land use type". For forest, experts needed to choose among forest types; for non-forest among different classes which could indicate tree or woody vegetation presence in the sample that does not qualify as forest. In field "Confidence" experts indicated the strength of reasoning. In fields "Mapping issues", experts indicated if the interpretation was affected by data issues, questions of land use complexity or anything else. As the interpretation revisited all CGLOPs validation sites, the interpreters in the first round were asked to also check if the initial calls for the whole primary sample unit were reasonable by turning on the previous CGLOPs interpretation. All fields but "Forest and land use type" allow to select or keep the

⁴ Experts interpreting in the second round did not assign a class to field "CGLOPs".

default class "no assignment". This label was used to indicate that the sample could not be interpreted - or in field "Mapping issues" that the sample was omitted by the expert⁵.

All experts have knowledge and experience in high resolution image interpretation and received guidelines and training to ensure a homogeneous interpretation following this assessment protocol. Experts assigned response labels to the centre 10x10m secondary sample unit. This label will be compared to class for this pixel in GFC 2020 map. However, the forest definition includes a few criteria that require the interpretation of a larger area. For instance, forest must have an area of at least 0.5ha, thus the mere presence of trees in the centre 10x10m secondary sample unit surrounded by grassland does not qualify as forest. Likewise, a decision of land use, i.e. is the area dominated by agriculture or grazing animals or predominantly under forest land use, requires the interpretation of a larger area was in most cases confined to the extent of the primary sample unit with 100x100m. This approach will also allow an interpretation if very high spatial resolution data are not available for a specific cite, yet the expert has sufficient knowledge and experience to assign a class.

⁵ The data base controller used "no assignment" in field "mapping issues" as one of the completeness checks.



Figure 6. Assessment protocol for class labelling.

Source: Own elaboration. Symbol "D"...Default setting.

A decision tree turned out useful for labelling fields "forest" and the respective class in field "Forest or land use type" (Figure 7). This decision tree serves as a general guide that can be applied to most cases. For forest and other wooded land it is important to consider the physical component (area, height, % cover) and the land use component of their definitions.



Figure 7. Indicative decision tree for labelling forest/non-forest and respective sub-classes.

Source: Own elaboration. Note: PSU...primary sample unit, SSU...secondary sample unit.

2.3.3 Field "Forest"

This and the following sections will explain in detail the reasoning for reference class assignment in each field. To this end, Figure 8 shows a few response image examples to illustrate some reference class assignments.

Experts assigned class "forest" if the full set of physical criteria is met and the dominant land use is forest. The estimation of tree height from optical high resolution images is the most challenging physical parameter. In case of doubt, Google Street view images were consulted, if available. In other cases rough estimates can be made based on the shade of trees, taking into account the latitude and season. The additional condition of "trees able to reach those thresholds in situ" is less complex if a time series of recent high resolution images is available. For tree density, experts were specifically asked to not count the cells within the primary sample unit that contain trees above 5m height, because this procedure is very time consuming. Instead they should make a very rough estimation if the density of trees in the primary sample unit is above 10%; this threshold is often reached with only a few larger trees present. Also for the area, experts only roughly estimated if the outer boundary of a possible patch is sufficiently large.

Interpreting the dominant land use is very challenging and often requires regional background knowledge. Images with very high spatial resolution may depict specific patterns such as foraging or resting domestic animal, animal tracks, equipment used for farming or grazing like machinery or water tanks, which indicate non-forest land use.

In Figure 8, example A shows a regrowing forest. Example B is a forest even though the sample (red cell) falls into an area without trees, because the area within the primary sample unit has tall trees with a density well above 10% and there are no signs of other land uses than forest. This is different in example C, where the dominant land use is grazing, even though all three physical forest criteria would be met. Example D contains woody vegetation below 5 m. In example E the land use with the largest area in the primary sample unit is forest, but the sample for assignment (the red cell) is located outside and the non-forest parcel is larger than 0.5ha. Example F shows an

agricultural tree plantation (cocoa and rubber) which precludes this land being labelled forest even if the physical criteria are met.

Figure 8. Examples of samples for class assignment.



Location: 33.6117" N. 82.6679" W

Assignments: lorest, planted or plantation forest, forest to be regrown



Location: 6 2165" N. 41.7763" E

Assignments: non-forest, other wooded kand; no leaves



Location: 9.6434" N, 25.4543" E Assignments: forest, primary or naturally regenerating, open treed land use



Location: 16.8368" N, 73.52492 E Assignments: non-torest, trees inside forest, multiple land uses



forest, open treed land use



Location: 5.83567 N, 4.84047 W Ausignments: non-Toxest, trees in agricultural use, no houses

Source: Google maps satellite images visualized via IIASA Geowiki. Own elaboration. Notes: the outer boundary of the yellow cells indicates the primary sample unit with 100x100m, the red square near the centre indicates the sample location for which the labelling is assigned. For all examples, experts assigned class labels with high confidence.

2.3.4 Field "Forest or land use type"

The classes for field "forest or land use type" depend on the sample labelled forest or non-forest. For forest samples, the expert assigned the forest type, for non-forests the experts selects from a set of classes that contain trees and therefore hold potential to be misclassified as forest in the map. For forest types the assessment protocol distinguishes between primary or naturally regenerating forest vs planted or plantation forests (for class definitions under the EUDR see Annex 1, under FAO see Annex 2). This separation was mainly based on identifying monospecific forest patches or patches planted with trees in rows or along hypsometric lines and regional knowledge and frequently requires a time series of high resolution images. Often it was not possible to distinguish forest types solely based on satellite images. There are no spatial or temporal indicators that separate between primary and naturally regenerating forests. Likewise, planted forest are difficult to separate from forest plantations after reaching a certain level of maturity. Also, this

distinction in 2020 is not needed for implementing the EUDR. The definition of forest degradation (see Annex 1) only requires to distinguish for the starting point in 2020 between primary forest, naturally regenerating forest and all other forests (here planted and plantation forests combined). The Regulation also sets out that all ambiguous cases shall be assigned to class "Primary and naturally regenerating forests". Example A in Figure 8 shows patterns of planting in rows while example B shows no patterns of significant human intervention for stocking.

The land use labelling for samples classified as "non-forest" served a better understanding of possible class confusion, namely the commission error, e.g. due to the presence of trees that do not qualify as forest. The separation between trees above 5m and other woody vegetation, e.g., shrubs and bushes, below this threshold is complicated even with ample high resolution images and Google Street view available. The definition of "other wooded land" is complex in itself. It has two options; in either case the land use must not be agricultural or urban: 1) trees above 5 meters or the ability to reach this threshold but a tree density between 5 and 10 percent or 2) a combined cover of shrubs, bushes and trees above 10 percent. The first option was not considered, because resourcing limitations did not allow for tree counting in cells. Experts only assessed the second option that focuses on woody vegetation density and predominant land use. Example D in Figure 8 illustrates an example where dense woody vegetation is present but was found to be below 5m and there are no signs of agricultural or urban land use.

The assessment protocol provides for several possible assignments for samples that meet the physical forest thresholds but forest is not the dominant land use. The FAO summarizes this under "other land with tree cover", see Annex 2 (FAO, 2018). Class "Trees for agricultural use" encompasses all agricultural production systems with woody vegetation that fulfils the physical forest characteristics, e.g. fruit tree plantation or old palms, but also trees landscapes with agricultural production systems underneath, such as cocoa and coffee. Example F in Figure 8 illustrates this case of a rubber and an adjacent cocoa plantation. Experts assigned class "trees in urban areas" to urban or sub-urban samples with higher and denser trees, including parks in urban agglomerations or vegetated areas with trees such as golf courses or other recreational installations that are clearly not forest land use. Class "trees outside forests" contains all remaining cases such as trees with grazing underneath or trees in wetlands that do not qualify as forest due to height or density. Example C in Figure 8 indicates a case of grazing land with tree above 5 meters and a density above 10 percent.

Class "trees inside forests" describes a specific case in which the primary sample unit is predominantly forest but the secondary sample unit that received the label is located in non-forest land use with an area of at least 0.5 hectares. Example E in Figure 8 illustrates this situation, which is different from Example B where the sample for class assignment was casted in a predominantly forested area but this pixel (i.e. an area well below 0.5 hectares) does not show trees. All other cases with no or insignificant woody vegetation were labelled "no trees or shrubs present". This includes all other land uses, e.g. water, herbaceous, croplands, dense urban areas, non-treed wetlands, snow and ice, without any further distinction.

2.3.5 Field "Confidence"

Experts were requested to select the level of confidence of class assignment for the choice between "forest" and "non-forest". Labels for field "Forest and land use type", "CGLOPs" or "Mapping issue" were not considered with a confidence class assignment. To avoid the frequent selection of an intermediate level, the assessment protocol only foresees high and low confidence. Experts were encouraged to select "high confidence" if they felt that there is sufficient clarify in distinction between forest and non-forest. Nevertheless, the choice of the confidence level is somewhat subjective and does not *per se* relate to the level of experience or knowledge.

There are two broad groups of samples with low confidence: 1) if the sample unit is located very close to the boundary of forest vs non-forest land use patches or 2) if there is a genuine thematic uncertainty for labelling, e.g. related to tree height, density or land use. In this assessment we did not make a distinction between both.

2.3.6 Field "Mapping issue"

Experts had the opportunity to document specific issues that they encountered when assigning classes in fields "forest" and "forest or land use types". This field logs three groups: 1) Issues related to response images, 2) issues related to the thematic class assignment and 3) other issues. As only one class of this field can be selected, the interpreter shall indicate the dominant reason for labelling.

Labelling of forest/non-forest and respective forest or land use type may be possible, even if there are limitations in response images. For instance, for remote locations or samples at high latitudes there may be only a few images available (also in Google Earth Pro), which are generally at low resolution for image interpretation, e.g. 30m Landsat. Yet, by zooming out the interpreter can infer with reasonable confidence if the area is covered by forest over a long time period. Such samples should be labelled "low resolution" as only such data were used to make the decision. A similar situation may occur in areas of frequent cloud cover over the sample location for images close to 2020. If 1) the time series shows forest for the sample location in previous years and possibly more recently or 2) if there are cloud-free areas nearby in 2020 and there is generally little land use change, this sample could be classified as forest/non-forest. Class "no response data" indicates the absence of response images near 2020.

Thematic issues in the labelling include cases such as "Forest to be regrown", "Multiple land uses" and "Open treed land use". Forest land can be temporally unstocked, e.g. due to harvesting or natural disturbances, e.g., fires or blow downs. If the sample falls in a temporally unstocked area and the context in space (nearby stocked forest land) or time (time series with recent forest disturbance and possibly patterns of regrowth) indicates that the forest remains the main land use, the expert selected "Forest to be regrown". Example A in Figure 8 illustrates an example where the area was harvested in 2007 and was restocked in 2013. It does not matter if forest regrowth is by natural processes or planting. However, if the disturbance was prior to 2020 and there are signs of land use conversions, this sample shall not be labelled "forest" and the appropriate mapping issue class is "no issue".

Labelling forest/non-forest requires the interpretation of an area larger than the 10x10m sample cell that shall be assigned. In this study, interpreters generally looked at the 100x100m primary sample unit. However, in many cases several land use classes may be present in this larger area. If interpreters encountered a primary sampling unit with a larger homogeneous area to be labelled forest and another or several other homogeneous area of non-forest, the interpreter had to consider the location of the 10x10m cell for labelling. In such cases, the interpreter also assigned to this sample "multiple land uses". Example E in Figure 8 illustrates a typical case where forest and non-forest land uses are present and both are clearly larger than 0.5 hectares. The boundary between both land uses is sharp and the sample shall be assigned to non-forest, even if the area share in the 100x100 is smaller.

Yet, a different case is "open treed land use" with the particular characteristic of open or sparse forests. There are not distinct land uses but a melange or integration of land use systems represented by different cover types. Even if the 10x10m sample does not match with the presence of a tree, this site may still be called forest if the land use and minimum density and height thresholds are met, or non-forest, if the land use is agriculture or urban with open or sparse tree presence. Example C in Figure 8 depicts a location with open forest and the 10x10m pixel without trees.

"No issue" includes the majority of samples where there is no particularity to be reported. Cases that could not be allocated to present issue classes were logged under "Other issues", and expert was requested to briefly explain the issue in the comment box. As reading through comments is time consuming, experts were asked to only use the comment box for any sample if there is a significant issue or a particularity.

2.3.7 Field "CGLOPs"

As all 21,752 samples from the 2015 Copernicus Global Land Cover Product (CGLOPs) validation had to be revisited, the team of experts also decided to quickly review if the sample validation label for the year 2019 can be considered correct⁶. The CGLOPs validation labelled 100 10x10m samples that corresponded to a 100x100m cell of the map. In this exercise, experts in the first round viewed the classes assigned for 2019 and determined if this labelling is generally correct. Experts only indicated a possible issue if there is clear evidence of mislabelling of larger areas. Experts did not relabel cells or to provide further explanations. Figure 9 shows the viewers capacity to look at the validation sample location (left) and then turn on CGLOPs validation labels to compare (right). The feedback provided here will merely serve the CGLOPs team to revisit samples for a potential reinterpretation.

Figure 9. Illustration of CGLOPs validation approach.



Source: Tzendbazar et al. 2015.

⁶ Results from this labelling were reported to the CGLOPs validation team and will not be analysed in this report.

Commented © 22(1)(a)(iii) I propose to not analyse the CGLOPs labels (in any case we could only show how many (and where) we found labels which are possibly incorrect. However, it may not be for us to judge the CGLOPs labels. Therefore I prefer to explain in the footnote that we do not report on this.

2.3.8 Response data interpretations

There were two independent interpretations of response images. First, 13 experts, mainly from the JRC, interpreted response images for all 21,752 samples. We divided the World in 14 regions according to the available expertise by interpreters and ensuring an approximate balance of samples. In some regions, two experts collaborated to complete the interpretation. Figure 10 shows the regions, and Table 2 indicates the interpreters and number of assigned samples. Next, mostly external experts revisited a subset of 4,000 samples. This included all samples that were assigned with low confidence in the first interpretation and a random selection of samples with high confidence for quality control (Table 2). To reduce the burden, yet to ensure full spatial coverage, we aggregated to eight regions; see bold outlines in Figure 10. Each external expert interpret 500 samples per aggregated region.

To ensure a reasonably harmonized approach, all experts received a personal or group training and guidance material. For the first interpretation, the experts also had technical meetings shortly after the start of the labelling to discuss how to cope with some technical challenges in the tools and interpretation of complex sites. To the extent possible, the response labels should be representative for the end of year 2020 (the cut-off date in the EUDR). In many cases, interpretations were based on a set of images before and after the cut-off date. Samples with standing forest can also be interpret with reasonable confidence if there are images after the cut-off date but interpretations based on images only before the cut-off date are challenging.





Source: GISCO, 2020. Own elaboration. Note: Filled polygons show 14 regions for interpretation of all samples in the first round. Polygons with bold outline indicate eight regions for interpretation of 500 samples in each aggregated region.

Table 2	Regions	experts and samples	for assessment for the	first and second interpretation
I AULE Z.	Regions	. EXDELLS ALLU SALLIDLES		TILSE AND SECOND INTERDIELATION.

First interpretation	1		Second interpretation					
Region / Interpreters Samples			Region /	Interpreters	Low/high			
Countries			Countries		conf.			
					samples			
Alaska, Canada,	s 22(1)(a)(ii)	1,318	North America,	s 22(1)(a)(ii)	267 / 233			
Greenland	s 22(1)(a)(ii)		Central	s 22(1)(a)(ii)				
USA, Mexico,	s 22(1)(a)(ii)	1,738	America and					
Central America,			the Caribbean					
the Caribbean								

Commented s 22(1)(a)(ii) All colleagues: In this table I disclose the names of interpreters by region. Please let me know if you do **NOT** agree.

s 22(1)(a)(ii)	1,290	South America	s 22(1)(a)(ii)	192 / 308
			s 22(1)(a)(ii)	
s 22(1)(a)(ii)	1,560			
s 22(1)(a)(ii)	2,029	Europe	s 22(1)(a)(ii)	218 / 282
3 ZZ(1)(a)(ii)			s 22(1)(a)(ii)	
			s 22(1)(a)(ii)	
s 22(1)(a)(ii)	1,113			
s 22(1)(a)(ii)	1,695	Northern	s 22(1)(a)(ii)	55 / 445
(')(-)(-)		Africa		
s 22(1)(a)(ii)	1,922	Southern	s 22(1)(a)(ii)	159/341
s 22(1)(a)(ii) s 22(1)(a)(Africa	s 22(1)(a)(ii)	
s 22(1)(a)(ii)			s 22(1)(a)(ii)	
			s 22(1)(a)(ii)	
			s 22(1)(a)(ii)	
s 22(1)(a)(ii)	2,300	Northern and	s 22(1)(a)(ii)	297 / 203
s 22(1)(a)(ii)		eastern Asia		
s 22(1)(a)(ii)	1,306			
s 22(1)(a)(ii) s 22(1)(a)				
s 22(1)(a)(ii)				
s 22(1)(a)(ii)	1,342	Central and	s 22(1)(a)(ii)	107 / 393
		Southern Asia	s 22(1)(a)(ii) s 22(1)(a)(ii)	
s 22(1)(a)(ii)	1,158		s 22(1)(a)(ii)	
s 22(1)(a)(ii)	2,455	Australia and	s 22(1)(a)(ii)	78 / 422
3 22(1)(d)(ll)		Oceania	s 22(1)(a)(ii)	
s 22(1)(a)(ii)	526			
x / X · / X /				
	21,752			1,373 / 2627
	s 22(1)(a)(ii) s 22(1)(a)(ii)	s 22(1)(a)(ii)1,290s 22(1)(a)(ii)1,560s 22(1)(a)(ii)2,029s 22(1)(a)(ii)1,113s 22(1)(a)(ii)1,113s 22(1)(a)(ii)1,695s 22(1)(a)(ii)1,695s 22(1)(a)(ii)1,922s 22(1)(a)(ii)2,300s 22(1)(a)(ii)2,300s 22(1)(a)(ii)1,306s 22(1)(a)(ii)1,306s 22(1)(a)(ii)1,342s 22(1)(a)(ii)1,158s 22(1)(a)(ii)2,455s 22(1)(a)(ii)526s 22(1)(a)(ii)526z 21,75221,752	s 22(1)(a)(ii) 1,290 South America s 22(1)(a)(ii) 1,560 Europe s 22(1)(a)(ii) 1,113 Europe s 22(1)(a)(ii) 1,113 South America s 22(1)(a)(ii) 1,113 Europe s 22(1)(a)(ii) 1,695 Northern Africa s 22(1)(a)(ii) 1,695 Southern Africa s 22(1)(a)(ii) 1,922 Southern Africa s 22(1)(a)(ii) 2,300 Northern and eastern Asia s 22(1)(a)(ii) 1,306 Southern Asia s 22(1)(a)(ii) 1,306 Southern Asia s 22(1)(a)(ii) 1,158 Central and Southern Asia s 22(1)(a)(ii) 1,158 Australia and Oceania s 22(1)(a)(ii) 526 21,752	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$

Source: Own elaboration.

Note: 500 samples were interpreted in the second interpretation for each aggregated region.

2.4 Statistical estimators

2.4.1 Estimators of accuracy

Statistical estimators of accuracy and errors followed established protocols and used existing equations documented in the scientific literature. Using a pre-existing sampling for the accuracy assessment, the strata used to select the samples are different from the map classes (Tsendbazar et al., 2021). For this case we used a stratified estimator by Stehman (2014). According to Stehman (2014), the task of estimating the accuracy and area parameters for stratified random sampling is to estimate a mean \overline{Y} . An unbiased estimator of \overline{Y} is

Equation 1. Unbiased error estimate.

$$\hat{Y} = \sum_{h=1}^{H} N_h^* \bar{y}_h / N$$

Where $\bar{y}_h = \sum_{u \in h} y_u/n_h^*$ is the sample mean of the y_u values (y_u is 1 if mapped and reference class matches, otherwise 0 at sample site u) in stratum $h, u \in h$ indicates that sample pixel u was selected from the stratum h, and H denotes the number of strata. N is the number of all possible sample sites in the population.

Commented s 22(1)(a)(ii) Is this supposed to be Y dash hat? The result of Equation 1. Is so, the hat would be missing To estimate overall accuracy, the following definition of y_u is used in Equation 1:

$$y_u = \begin{cases} 1 \text{ if pixel } u \text{ is classified correctly} \\ 0 \text{ if pixel } u \text{ is classified incorrectly} \end{cases}$$

To estimate the proportion of area P_{ij} in cell (ij) of the error matrix, the following definition of y_u is used in Equation 1:

$$y_u = \begin{cases} 1 & if pixel u is map class i and reference class j \\ 0 & otherwise \end{cases}$$

To estimate map accuracy and its confidence intervals, Equation 1 to Equation 3 were used following the approach by Stehman (2014). Class accuracies (user's and producer's accuracy or commission or omission error, respectively) and their variance are calculated as specified in Stehman (2014). Accuracies and their confidence intervals were calculated at the global and continent levels (at 95% confidence level).

2.4.2 Uncertainty estimators

An estimator of the variance $\hat{V}(\hat{Y})$ is

Equation 2. Estimator of variance.

$$\widehat{V}\left(\widehat{Y}\right) = \left(\frac{1}{N^2}\right) \sum_{h=1}^{H} N_h^{*2} \left(1 - \frac{n_h^*}{N_h^*}\right) s_{yh}^2 / n_h^*$$

Where n_h^* is sample sites selected from the N_h^* possible samples sizes in stratum h in the population and the sample variance of the value y_u values from stratum h is:

Equation 3. Sample variance

$$s_{yh}^2 = \sum_{u \in h} (y_u - \bar{y}_h)^2 / (n_h^* - 1)$$

2.4.3 Estimator of area

To estimate the proportion of area of reference class k P_k^A the following definition of y_u is used in Equation 1:

$$y_u = \begin{cases} 1 \text{ if pixel } u \text{ is reference class } k \\ 0 \text{ if pixel } u \text{ is not reference class } k \end{cases}$$

3 Analysis and results

3.1 Data preparation

3.1.1 Map data preparation

The map of Global Forest Cover for the year 2020 (GFC2020) is a global data layer that indicates the presence or absence of forest at 10m spatial resolution with a minimum mapping unit of 0.5ha area of forest or non-forest patches. Produced from existing global layers that indicate if a pixels could be forest or not forest according to the definition of the EUDR (EU, 2023), this map is an optional support tool for operators and traders when implementing the risk assessment under the regulation.

In December 2023, the JRC released the first version of the map and published the methodology in **Bourgoin el al. (2024) (summarized in Colditz et al. 2024)**. Based on user feedback, revised and newly available input data layers, the JRC published an improved version in December 2024 and documented the methodology in **Bourgoin et al. (2025a**) and **Bourgoin et al. (2025b**). Table 3 shows the interfaces where to access version 1 and 2 of the Global Forest Cover map for the year 2020.

 Table 3. Interfaces to consult or access version 1 and 2 of the Global Forest Cover map for year 2020.

	Version 1	Version 2
Viewing in the EU	https://forest-	https://forest-
observatory on	observatory.ec.europa.eu/forest/rmap	observatory.ec.europa.eu/forest/rmap
deforestation and	(select V1 under layers in the icon of	(default mode)
forest degradation	the right side)	
Viewing in GIS	https://ies-	https://ies-
environment as	ows.jrc.ec.europa.eu/iforce/qfc2020/w	ows.jrc.ec.europa.eu/iforce/gfc2020/
WMS service	<u>ms.py?</u>	wms.py?
Download in tiles	https://forobs.jrc.ec.europa.eu/GFC/v1	https://forobs.jrc.ec.europa.eu/GFC
Analysis-ready at	https://developers.google.com/earth-	https://developers.google.com/earth-
Google Earth Engine	engine/datasets/catalog/JRC GFC2020	engine/datasets/catalog/JRC GFC2020
(for experts)	<u></u>	<u>V2</u>

Source: own elaboration.

The data is the same and analysis-ready⁷ on all interfaces. Unless indicated differently, this report presents the accuracy and error statistics for version 2 of GFC2020 at 10m spatial resolution with a minimum mapping unit of 0.5 hectares (see Figure 11).

⁷ Data from a WMS service are for visualization only.



Figure 11. Map of Global Forest Cover for the year 2020, version 2.

Source: Country borders: GISCO 2020. Own elaboration.

3.1.2 Reference data preparation

Having two interpretations available allows for generating a reference set that ensures high quality also for complex sites while minimizing the exclusion of samples that could introduce bias and lead towards overestimating the accuracy of the map. For our reference set, we applied the following set of rules sequentially (numbers in parenthesis indicates the samples that were added to the reference set by each step):

- 1. Use all samples with high confidence in the first interpretation (20,379)
- 2. For the remaining samples, use all samples with high confidence in the second interpretation (1,093)
- 3. For the remaining samples, use all samples with low confidence in both interpretations if they agreed with the label for forest/non-forest; we used the first interpretation for all other fields (153)
- 4. For all remaining samples, make a decision which interpretation to use (103)
- 5. For 24 samples, no assignment could be made due to ambiguity in the response data. This total is composed of 3 samples with no assignment in the first interpretation, 3 samples with no assignment in the second interpretation and 18 samples with no assignment by a very experienced expert making a decision in step 4 (24 discarded)

We discarded small amounts of samples from the calculation of accuracy statistics. As noted above, 24 samples lacked or were covered by low quality or outdated response data. A set of 62 samples could not be spatially associated to any strata for the inclusion probability (Tzendbazar et al. 2015), and another 54 samples were located outside the FAO Global Assessment Unit Layer (FAO XXXX), which was used as map boundary for area statistics. This reduced the samples set from 21,752 to 21,612, equivalent to 0.6%.

The samples used in this study rely on a global set of 149 continental strata (see Figure 12; Olofson 2012, Tzendbazar et al. 2018, Tzendbazar et al. 2020). We converted this stratification to Commented s 22(1)(a)(ii) Source?

Equal Earth Pseudocylindrical projection with 100m spatial resolution and derived inclusion probabilities from pixel counts. We discarded 62 samples because they could not be associated to any strata, i.e. they were located beyond 80 degrees or they fell outside any strata⁸.

Figure 12. Continental stratification for inclusion probabilities.



Sources: Tzendbazar et al. 2015, projected to Equal Earth Pseudocylindrical projection, GISCO 2020.

3.2 Assessment of GFC 2020

3.2.1 Accuracy of version 2 of GFC 2020

Table 4 shows the error matrix in counts and as probabilities, the overall accuracy, and omission and commission errors applying the reference set as described in section 3.1.2 against the Global Forest Cover map Version 2. The overall accuracy of the GFC2020 V2 is 91% with 18% of commission and 8% of omission error for forest. There is no notable difference between the accuracies in raw counts and probabilities. Given the large sample set, the variance, expressed by the 95% confidence interval (CI 95), is small.

	Raw cou	nts (Refe	rence)		Proportions [%] (Reference)			
	Non-	Forest	Total	Commission	Non-	Forest	Total	Commission
	forest			[%]	forest			(CI 95) [%]
Non-forest	13,694	577	1,4271	4.0	64.0	2.5	66.4	3.7 (0.4)
Forest	1,325	6,016	7,341	18.0	6.0	27.5	33.6	18.0 (1.0)
Total	15,019	6,593	21,612		70.0	30.0	100.0	
Omission	8.8	8.8		91.2	8.6	8.2		91.5 (0.4)
(CI 95) [%]					(0.5)	(0.8)		

Table 4. Error matrix, errors and overall accuracy of GFC2020 Version 2.

Source: Own elaboration.

Note: Numbers in bold show the overall accuracy. CI 95...95% confidence interval.

⁸ Associations to additional spatial data layers resulted in a somewhat higher reduction of samples. This is noted in the corresponding sections.

Figure 13 shows the location of correctly or incorrectly classified samples globally. Misclassifications in large contiguous tropical forest areas such as the Amazon and Congo basin are rare. Commission errors are more notable in Europe with complex landscape mosaics and scattered across Siberia while other temperate forest in North and South America and Australia show fewer patterns of overestimation. Genuinely challenging zones are ecotones and complex treed landscapes, often with tree height close to the threshold of 5 meters. An example is the Brazilian Cerrado with high commission errors or central and eastern Australia with frequent omission errors. This analysis will be deepened in sections 3.4.1 and 0.

Figure 13. Correctly and misclassified reference samples in GFC 2020, version 2.



Source: country borders: GISCO 2020. Own elaboration.

3.2.2 Accuracy of version 1 of GFC 2020

For comparison, **Error! Reference source not found**. shows the same statistics as Table 4 for the Global Forest Cover map Version 1. While there is no difference in the overall accuracy of the map, there are small alterations in the commission error and omission errors, which reflect some of the changes that were applied to version 2.

	Raw cou	nts (Refe	rence)		Proportions [%] (Reference)			ce)
	Non- Forest		Non- Forest Total Commission Non-	Forest	Total	Commission		
	forest			[%]	forest			(CI 95) [%]
Non-forest	13,725	609	14,334	4.2	64.3	2.7	67.0	4.1 (0.4)
Forest	1,294	5,984	7,278	17.8	5.7	27.2	33.0	17.3 (1.0)
Total	1,5019	6,593	21,612		70.0	30.0	100.0	
Omission	8.6	9.2		91.2	8.2	9.1		91.5 (0.4)
(CI 95) [%]					(0.5)	(0.9)		

Table 5. Error matrix, errors and overall accuracy of GFC2020 Version 1.

Source: Own elaboration.

Note: Numbers in bold show the overall accuracy. CI 95...95% confidence interval.

Figure 14 shows sample locations that were classified differently between GFC2020 version 1 and version 2. Regions with more frequent changes in the class label are the Cerrado in Brazil, Central

America, western, central and eastern Africa towards the dry forest areas, and continental Southeast Asia.

Colours in Figure 14 indicate if the sample was an omission or a commission error of forest in a map version compared to the reference set. As it changed label, this sample was classified correctly in the other map version. For example, samples in dark green indicate areas incorrectly classified as forest in GFC 2020 version 1 (thus commission errors) and version 2 classified these samples correctly as non-forest. Overall there is a balance of samples classified incorrectly in a map version and not in the other: 132 samples of omission in version 1 (but classified as forest in version 2), 100 omissions in version 2, 179 commissions in version 1 and 209 commissions in version 2. Regionally there are clusters where the map generally increased or decreased in accuracy in version 2. There is a tendency of higher commission errors in the Brazilian Amazon, which is related to many locations with trees close to the tree height limit (they were classified as forest in version 2 but not in version 1). The contrary is the case in continental Southeast Asia with fewer areas classified as forest in version 2. Overall, there is a correctly excluding agricultural tree crops from forest in version 2 and less omission errors in dry open forests in central and eastern Africa in version 2.

Figure 14. Samples classified differently in GFC 2020 version versus version 2.



Source: Country borders: GISCO 2020. Own elaboration. Note: The colours indicate if the error in a version of a map was an omission or commission of forest compared to the reference data; hence this sample was classified correctly in the other map version.

3.2.3 Forest area in GFC 2020

Table 6 indicates the global forest area in GFC 2020 version 1 and version 2, the reference set and for comparison the FAO Forest Resources Assessment for 2020 (FAO 2020). Areas from maps indicate the pixel count proportional to their latitude⁹. Areas from GFC 2020 version 1 and version 2

⁹ GFC2020 is projected in WGS84 (EPSG: 4326) by which pixels at higher latitude reflect an area that is larger than their size. This effect was corrected for the area estimate from the map.

reported in Table 6 consider the sum of the GAUL country delineation¹⁰ (CITATION FOR GAUL). The forest area from the reference set follows the approach of **Stehman (2013)** that extrapolates the proportion of samples labelled "forest" over the total land area (here the area of the 149 strata inside the GAUL country line). This probabilistic calculation allows for variance estimates, here reported as standard errors. The global forest area from FRA-FAO builds on statistical reporting of forest area from countries and, if necessary, extrapolation to year 2020.

Table 6. Global Forest area in GFC2020 version 1, version 2, the reference set and FAO for 2020.

	GFC2020 V1	GFC2020 V2	Reference set (CI 95)	FA0 for 2020
Forest area [Mio ha]	4,473	4,562	4021 (±25)	4,058

Source. FAO 2020 and own elaboration.

Note: Forest area from maps reports pixel counts considering the pixel area at the respective latitude. The forest area for GFC2020 version 1 and version 2 is constrained to the sum of the country outline from the GAUL dataset. The reference set takes into account the strata by Tzendbazar et al. (2015) and the GAUL outline. CI 95...95% confidence interval.

Complementarily, Figure 15 depicts the forest area proportion compared to the land area in each 1x1 degree cell. White cells show areas where no forest is present. The presentation confirms global forest patterns with nearly 100% coverage in the inner tropics and the boreal forest belt while other regions such as central and southern Europe or subtropical southern Africa_show partial forest coverage.





Source: GISCO 2020. Own elaboration.

In Table 6, the forest area in the reference set is less than 1% from the FAO. The forest area reported from pixel counts in maps is between 10 to 13% more than from the reference set or the FAO. The forest area in GFC 2020 Version 2 increased by 2% compared to version 1. This confirms

¹⁰ The area of forest without constraint from any outline is 4,480 Mio ha in GFC2020 version 1 and 4,565 Mio ha in GFC2020 version 2. Technically, this corresponds to the total area for all 10x10 degree processing tiles for GFC2020 in Google Earth Engine.

the increase in commission error in Table 4 compared to Table 5. This gain in area, however, is not uniform across the world. Figure 16 shows the net gain or loss of forest area in GFC2020 version 2 compared to version 1 for cell of 3x3 degrees. Western Africa, Southeast area and Central Siberia are areas in which GFC2020 version 2 maps less forest; area of net area increase are the Brazilian Cerrado, tropical Africa around the Congo basin and boreal forests in Canada.



Source: GISCO 2020. Own elaboration. Note: The reporting unit are 3x3 degree cells. The analysis produces results for cell with at least Xha forest in GFC2020 version 1.

3.2.4 Remarks on previous assessments of GFC2020 version 1

In previous studies for GFC2020 Version 1 (Bourgoin et al. 2024, Colditz et al. 2024) we reported an assumed lower overall accuracy of 76% and significantly different commission (4.8%) and omission errors (4.8% and 39.7%, respectively). This preliminary accuracy assessment was based on a readily available set of samples on forest management in 2015 from IIASA (Lesiv et al. 2022). Even at the time we noted at least two caveats with this reference set: 1) an edge effect with samples falling close to the forest boundary in our 10m map compared to 100m sample locations by IIASA, and 2) a change in forest cover between 2015 for IIASA samples and 2020 as data for the forest cover map. In addition, there could be statistical bias in the sample set as it was used without further adjustments and calculation of probabilities. Instead, in the current study, we developed a statistically robust reference data set which overcomes all the issues noted above. We therefore report the accuracy of GFC2020 Version 1 and 2 based on the statistics in **Error! Reference source not found.** and Table 4, respectively, with 91% overall accuracy.

3.3 Specific assessments

3.3.1 Assessment for control points

This section compares labels for forest/non-forest between the first and second interpretation for control points. Control points are defined as samples assigned with high confidence in the first interpretation that were randomly selected for a second interpretation. In total, there are 2,626

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samples¹¹. Table 7 shows the overall agreement and the under and overestimation of forest in the first interpretation compared to the second¹². Table A1 in Annex 3 shows the raw sample counts.

 Table 7. Overall agreement, underestimation and overestimation of forest in the first interpretation for assessment regions of the second interpretation and globally.

	Overall agreement between both inter- pretations	Underestimation of forest in first inter- pretation	Overestimation of forest in first inter- pretation	
North America, Central	92.7	14.5	10.6	
America and the Caribbean				
South America	94.1	7.1	7.1	
Europe	91.5	22.4	7.0	
Northern Africa	91.56	25.0	36.4	
Southern Africa	91.8	19.2	3.8	
Northern and eastern Asia	96.6	8.2	1.5	
Central and Southern Asia	94.4	17.6	4.6	
Australia and Oceania	91.2	8.2	17.5	
Global	92.8	14.2	10.8	
Global, high confidence	94.2	12.5	8.8	
Global, low confidence	73.5	26.7	25.8	

Source: Own elaboration

The overall agreement between interpretations is 92.8% globally. This result is satisfactory considering different levels of interpreters involved in interpreting response images. There is no notable variation of overall agreement between regions. Lower agreements around 91% were found in Australia and Oceania, Northern Africa, Europe, and Southern Africa; Northern and Eastern Asia shows the highest overall agreement (96.6%). Figure 17 shows spatially the location of control samples for agreement and disagreement between the first and the second interpretation.

Globally there is a balance between under and overestimation (14.2% and 10.8%, respectively), but they vary notably among regions and may also show bias. For instance, Northern Africa shows 25% underestimation and 36% overestimation of forest. Even though this is much higher than in other regions, the overall agreement is similar because both interpretations agree on many samples for non-forest.

¹¹ The second interpreter for South America could not assign a label for one sample due to the lack of response images. This sample was discarded from this analysis.

¹² We introduce the terms "overall agreement", "underestimation" and "overestimation" to distinguish the results from comparisons of the map label against a reference set, but mathematically the calculations are identical to the overall accuracy, omission error and commission error, respectively, in which the second interpretation serves as the reference set. All calculations are based on sample counts.



Source: GISCO 2020. Own elaboration.

Lastly, the global comparison was divided in high and low confidence in the second interpretation (all control points had high confidence in the first interpretation). The statistics did not changes a lot for only high confidences samples, but low confidence labels for the second interpretation show a drop in overall agreement by nearly 20%.

3.3.2 Assessment of GFC2020 version 2 different sample sets

This section analyses the impact of generating a different reference set; see section 3.1.2 for the default approach used for the reference set and Table 4 in section 3.2 for the error matrix and statistics. We generated the following alternatives from this default set:

- A. All response labels from first interpretation
- B. All response labels with high confidence from first interpretation
- C. All response labels from second interpretation
- D. All response labels with high confidence from second interpretation

Table 8 to Table 11 present the error matrix and statistics from raw counts and proportions that correspond to scenarios A to D, respectively.

Table 8. Error matrix, errors and overall accuracy of GFC2020, version 2 for scenario A (All response labels from first interpretation).

	Raw counts (Reference)			Proportions [%] (Reference)				
	Non-	Forest	Total	Commission	Non-	Forest	Total	Commission
	forest			[%]	forest			(CI 95) [%]
Non-forest	13,681	590	14,271	4.1	63.9	2.5	66.4	3.8 (0.4)
Forest	1,441	5,900	7,341	19.6	6.8	26.7	33.6	20.4 (1.1)
Total	15,122	6,490	21,612		70.8	29.2	100.0	
Omission	9.5	9.1		90.6	9.7	8.5		90.7 (0.5)
(CI 95) [%]					(0.5)	(0.8)		

Source: Own elaboration.
Table 9. Error matrix, errors and overall accuracy of GFC2020, version 2 for scenario B (All response labels with high confidence from first interpretation).

	Raw counts (Reference)			Proportions [%] (Reference)				
	Non-	Forest	Total	Commission	Non-	Forest	Total	Commission
	forest			[%]	forest			(CI 95) [%]
Non-forest	13,384	450	13,834	3.3	66.1	2.0	68.0	2.9 (0.3)
Forest	1,095	5,336	6,431	17.0	5.6	26.4	32.0	17.4 (1.1)
Total	14,479	5,786	20,265		71.6	28.4	100.0	
Omission	7.6	7.8		92.4	7.8	7.0		92.5 (0.4)
(CI 95) [%]					(0.5)	(0.8)		

Source: Own elaboration.

Note: Numbers in bold show the overall accuracy. CI 95...95% confidence interval.

Table 10. Error matrix, errors and overall accuracy of GFC2020, version 2 for scenario C (All response labels from second interpretation).

	Raw counts (Reference)			Proportions [%] (Reference)				
	Non-	Forest	Total	Commission	Non-	Forest	Total	Commission
	forest			[%]	forest			(CI 95) [%]
Non-forest	2,018	233	2,251	10.4	55.1	5.4	60.5	8.9 (1.3)
Forest	349	1,361	1,710	20.4	7.5	32.0	39.5	19.0 (2.1)
Total	2,367	1,594	3,961		62.6	37.4	100.0	
Omission	14.7	14.6		85.3	12.0	14.5		87.1 (1.2)
(CI 95) [%]					(1.4)	(2.1)		

Source: Own elaboration.

Note: Numbers in bold show the overall accuracy. CI 95...95% confidence interval.

Table 11. Error matrix, errors and overall accuracy of GFC2020, version 2 for scenario D (All response labels with high confidence from second interpretation).

	Raw counts (Reference)				Proportions [%] (Reference)			ce)
	Non-	Forest	Total	Commission	Non-	Forest	Total	Commission
	forest			[%]	forest			(CI 95) [%]
Non-forest	1,899	181	2,080	8.7	56.4	4.7	61.1	7.7 (1.3)
Forest	251	1,198	1,449	17.3	6.3	32.5	38.9	16.3 (2.2)
Total	2,150	1,379	3,529		62.8	37.2	100.0	
Omission	11.7	13.1		87.8	10.1	12.7		88.9 (1.2)
(CI 95) [%]					(1.4)	(2.1)		

Source: Own elaboration.

Note: Numbers in bold show the overall accuracy. CI 95...95% confidence interval.

The comparisons of accuracy and error statistics between Table 8 and Table 11 to the default sample set in Table 4 show no remarkably different results. Notably, accuracies using the full sample set labelled in the first interpretation are very similar: 91.5% overall accuracy in the default set compared to 90.7% for unconditionally using exclusively the first interpretation and 92.5% for only using labels with high confidence. Commission and omission errors are also similar and follow the same pattern with a higher commission than omission of forest. Only using much viewer samples of the second interpretation reduces the overall accuracy to 87.1% and 88.9% if restricted to labels with high confidence; and both assessments show higher omission errors. Reasons for

these small differences are manifold but most important may be a diversity of training levels and higher ambiguity with samples that were difficult to interpret in scenario C that included all samples of low confidence in the first interpretation.

3.3.3 Assessment of forest and land use types

This assessment focuses on the labels assigned to each sample for 1) forest type or 2) land use type in case the reference samples was labelled "non-forest". Figure 18 shows the number of correctly or incorrectly classified samples in GFC 2020 version 2 for each forest or land use land type (columns "No trees or shrubs present" and "Primary or naturally regenerating forest" were scaled to the second y-axis.





Source: Own elaboration. Note: "No trees or shrubs present" and "Primary or naturally regenerating forest" were scaled to the second y-axis, see red colour.

Interpreters assigned forest to approximately 30% of the total sample set and the vast majority of those were labelled "Primary or naturally regenerating forest" (96% or **5.340** out of **5.596** samples labelled forest). There are several reasons for this significant difference. Planted and plantation forests only exist in some world regions. Large parts of the world's forests are located in areas far from urban centers and agricultural areas, namely in the Amazon basin, boreal forests Canada and Russia where forests are either untouched or regenerate by natural processes. Also managed forests may regenerate naturally or with less than 50% of a planted trees at maturity (see definition of planted forest in <u>Annex 1 and 2</u>). Another reason for this higher share is that in case of doubt the interpreter had to assign "Primary or naturally regenerating forest" following the definition of naturally regenerating forests in <u>Annex 1 and 2</u>. The detection of planted forests by visual interpretation is challenging to impossible, especially if mixed with natural regrowth.

The share of correctly classified samples in GFC 2020 is higher for forest type "Primary or naturally regenerating forest" (92%) than for "Planted or plantation forest" (75%) but in terms of samples incorrectly classified the amount is higher for "Primary or naturally regenerating forest" (515) samples). Figure 19 shows in larger symbols incorrectly classified samples in GFC 2020 version 2 disaggregated by forest or land use type. Especially Australia and Central America show clusters of omitted forests that would be referenced "Primary or naturally regenerating forest". Omissions of planted and plantation forest are predominantly located in Eastern Asia.

Figure 19. Sample location for forest or land use type incorrectly classified in GFC 2020 version 2 (large symbols)



Source: GISCO 2020. Own elaboration. Note: Larger symbols show incorrectly classified samples in GFC 2020 version 2.

Interpreters could not identify the presence of trees or shrubs for 70% (10,400) of the samples labelled non-forest in the reference set. This high quantity was expected, because we used the sample locations from a global land cover map validation. Approximately 13% (2,057) of all non-forest samples were labelled "other wooded land". This class represents samples where some woody vegetation was present but either the height or the cover density was not sufficient to meet the thresholds of the forest definition (5m at maturity and 10% coverage), or the life form does not correspond. Trees outside forest (8%, 1,280 samples) corresponds to areas where despite the presence of trees, forest land use is not predominant (in this study not being agriculture or urban land use), e.g. in the case of extensive grazing. In most cases trees supersede the height threshold with an open canopy often denser than the coverage threshold. For the remainder, interpreters labelled 4% (520) as "trees in urban areas", 3% (448) as "trees inside forest" and 2% (289) as "trees for agricultural use".

Share of correctly classified samples in GFC 2020 (see Figure 18) are highest for non-forest land uses "no trees no shrubs" (98%) and "trees in urban areas" (95%), both being land uses where physical and spectral characteristics are very distinct from forest. Highest confusions with forest are shown for "trees inside forest" (43%) and "other wooded land" (28%). The confusion for other wooded land is due to thematic ambiguity by the interpreter and the mapping algorithm whether physical forest thresholds are met. Geographically confusions between forest and non-forest categorized as "other wooded land" cluster in the Brazilian Cerrado (Figure 19), due to a high

uncertainty about the tree height criterion. Other areas with major confusion are regions with dry open forests, mainly in Africa, and the transition from boreal to tundra landscapes in Canada and Russia. Confusions for trees inside forest could be mainly related to geometric uncertainties in the interpretation and mapping of forest edges, as in most cases the sample was located in a sufficiently large area (>0.5ha) is non forest but close to or surrounded by forest land use. Geographically this issue concentrates in regions with complex forest edges such as in central and southern Europe, Eastern Asia and Eastern Australia. Approximately 20% and 18% of the samples "Trees for agricultural use" and "Trees outside forest" were mapped as forest. Given the thematic ambiguity in both, mapping in GFC 2020 and interpretation for the reference set, this result is satisfactory. Western Africa, especially Cameroon shows a clustering of misclassification for "Trees for agricultural use"; Colombia, Eastern and Southern Brazil, outer-tropical regions in Africa Mediterranean Europe and central Siberia shows clusters of misclassified "Trees outside forest".

3.3.4 Assessment of issues

Interpreters categorized issues for the assignment of forest or non-forest. For 87% of all samples interpreters found no issue. The following analysis will only focus on the remaining issues. Figure 20 shows the number of samples for which interpreters identified issues when labelling forest/non-forest. Figure 1 shows the location of all 2744 samples with issues



Figure 20. Samples identified with issues when labelling forest/non-forest.

Twelve percent of the issues are related to data, 84% to mapping and 4 percent are other issues. Among the data-related issues, "no response data" for or close to the year 2020 are found most frequent and almost all samples are located in the inner tropics of South America, Africa and Southeast Asia. Samples with only low resolution cluster in Central Asia and inner Australia, and most of the samples that provide relevant images with could cover are clustered in and around Colombia. Many samples with forest that were not stocked or stocked with trees that are less than 5m high but which are expected to grow beyond this threshold are located in Canada and Central Europe. Approximately 37% of the samples contain in the area of 100x100m clearly more than one land use. Such samples are frequent in complex landscapes such as the Mediterranean Brazil along the Atlantic coast and Central America, but they also scatter in northern central Asia, Southeast Asia and tropical Africa. On the contrary, samples open treed land use prevail in the western USA, in the outer tropics of Africa, the Mediterranean, in central and eastern Siberia and Eastern Asia. These samples mark locations where tree cover is very open and occasionally it is challenging to assign the forest/non-forest class due to ambiguity in the land use.







3.3.5 Assessment without MMU

Table 12 shows the accuracies and errors for GFC2020 version 2 without applying the minimum mapping unit (MMU). The difference of the overall accuracy and the errors are less than 0.3% compared to the accuracy and errors with MMU (see Table 4). We conclude that the application of the MMU has no notable impact on the product accuracy estimates. Applying the MMU however, is not only a cosmetic procedure to remove very small patches but also brings the product closer to the forest definition as set out in the Regulation (EU) 2023/1115 (EU, 2023).

 Table 12. Error matrix, errors and overall accuracy of GFC2020, version 2 without the minimum mapping unit of 0.5ha.

	Raw counts (Reference)				Proportions [%] (Reference)			
	Non-	Forest	Total	Commission	Non-	Forest	Total	Commission
	forest			[%]	forest			(CI 95) [%]
Non-forest	13,658	604	14,262	4.2	63.9	2.5	66.4	3.8 (0.4)
Forest	1,361	5,989	7,350	18.5	6.2%	27.4	33.6	18.3 (1.0)
Total	15,019	6,593	21,612		70.0	30.0	100.0	
Omission	9.1	9.2		90.9	8.8	8.3		91.3 (0.4)
(CI 95) [%]					(0.5)	(0.8)		

3.4 Regional assessment

This section focuses on three regional assessments for GFC 2020, version 2. In the assessment by continents and biomes we allocate each sample to a regional strata. We generate error probabilities by also crossing the inclusion probability strata with the regional strata. For the third assessment we generate error maps at 1x1 degree via a moving window approach with an 11x11 degree kernel. These maps are based on raw sample counts.

3.4.1 Assessment for continents

Figure 22 shows the continental outlines used in this study, with geometries based on the FAO Global Administrative Units Layer (GAUL, CITATION+source). This outline corresponds to the FAO Forest Resources Assessment 2020 reporting (FAO 2020), except that we separated Russia from the remaining European countries of "Europe".



Source: FAO Global Administrative Units Layer (GAUL). Own elaboration.

Table 13 shows a summary of the regional overall accuracies and commission and omission errors for forest in GFC 2020, version 2. All statistics are based on the probability error matrix; annex 4 shows the raw count and probability error matrices and corresponding statistics. There are notable differences of the overall accuracy among continental strata with lowest accuracies for South America (88.6%) and Russia (88.7%) and highest for Asia (94.9%). Commission errors for forest are highest in Africa (24.6%) and lowest in Asia (12.5%) and Oceania (12.6%). Omission errors range between 2.6% in Russia and 25% in Oceania.

Table 13. Overall accuracy and commission and omission errors for forest in GFC 2020 version 2 by continents.

	Overall accuracy [%]	Commission error [%]	Omission error [%]
Africa	92.1 (1.0)	24.6 (3.1)	9.2 (2.8)
North and Central America	91.6 (1.1)	18.1 (2.6)	7.1 (1.8)
South America	88.6 (1.2)	16.5 (2.0)	6.2 (1.4)
Asia	94.9 (0.7)	12.5 (2.5)	12.2 (2.4)

Europe	89.5 (1.2)	22.5 (2.6)	5.5 (1.6)
Oceania	89.6 (1.4)	12.6 (2.8)	25.0 (3.6)
Russia	88.7 (1.5)	18.1 (2.4)	2.6 (1.1)
Global	91.5 (0.2)	18.0 (0.5)	8.2 (0.4)

Source: Own elaboration.

Note: All statistics are based on the probability error matrix. For further details see annex 4, Numbers in parenthesis show the 95% confidence interval. Accuracies and errors for the "global" are for illustration only and are identical to statistics in Table 4.

Figure 23 shows the areas by continents from GFC2020 version 2, the reference data using the approach by **Stehman et al (2014)** and from the FAO-FRA for the year 2020 (**FAO, 2020**). The figure depicts comparable area total for each continent, with very similar totals between the reference set and FAO-FRA 2020. For all continents but Oceania, the area total of GFC2020 version 2 was highest, and except for Asia and Oceania, the reference set showed lowest totals.

Figure 23. Forest area in Mio hectares for each continent from GFC2020 version 2, the reference set and FAO-FRA for the year 2020 (FAO, 2020).



Source: Own elaboration. Note: The error bars for the reference data indicate the 95% confidence interval.

3.4.2 Assessment for ecoregions

This section presents accuracies and errors for forest in GFC 2020 Version 2 for 20 ecological zones as defined by the FAO (see Figure 24, FAO XXXX). To this end, we crossed the strata for inclusion probabilities with the layer for ecological zones. This led to a total of 21,315 samples¹³.



Figure 24. FAO global ecological zones.

Table 14 presents the Overall accuracy and commission and omission error of GFC 2020 version 2 for each ecological zone; annex 5 shows all error matrices and statistics. Errors were only produced if there was a sufficient amount of forest samples available. Figure 25 shows as maps for each strata the overall accuracy, and Figure 26 and Figure 27 the same for the commission and omission error, respectively.

Table 14. Overall accuracy and commission and omission errors for forest in GFC 2020 version 2 by global ecological zones.

	Overall accuracy [%]	Commission error [%]	Omission error [%]
Tropical rain forest	90.6 (1.3)	7.2 (1.4)	6.3 (1.3)
Tropical moist forest	83.4 (2.1)	27.8 (5.0)	7.7 (2.4)
Tropical dry forest	81.6 (2.6)	32.9 (5.0)	14.9 (4.2)
Tropical shrubland	93.0 (1.5)	31.6 (8.6)	29.8 (8.2)
Tropical desert	99.1 (1.2)	NA	NA

¹³ The total sample is different from analysis in other chapters. In addition to the 24 samples that were not assigned and 62 samples that fell outside any inclusion probability strata (Tzendbazar et al. 2015, see also section 3.1.2), we excluded 351 samples outside any ecological zone (no data, water, etc). This reduced the total set of samples from 21,752 to 21,315 (2.0 %).

Tropical mountain systems	90.3 (2.5)	18.8 (5.0)	5.2 (3.3)
Subtropical humid forest	91.3 (2.3)	12.5 (4.1)	6.2 (2.9)
Subtropical dry forest	86.0 (3.1)	33.4 (7.4)	10.5 (5.5)
Subtropical steppe	94.2 (1.6)	17.9 (7.4)	28.6 (9.0)
Subtropical desert	94.7 (1.3)	NA	NA
Subtropical mountain systems	95.3 (1.6)	13.9 (5.2)	4.4 (3.1)
Temperate oceanic forest	90.8 (2.4)	21.6 (6.0)	6.4 (2.4)
Temperate continental forest	91.5 (1.7)	12.8 (2.9)	6.4 (2.4)
Temperate steppe	96.3 (1.5)	23.9 (13.4)	31.3 (13.9)
Temperate desert	100.0 (0.0)	NA	NA
Temperate mountains systems	94.8 (1.6)	12.1 (3.9)	2.9 (2.3)
boreal coniferous forest	85.7 (2.4)	17.0 (2.9)	2.0 (1.1)
Boreal tundra woodland	82.1 (4.1)	32.5 (7.7)	12.9 (6.5)
Boreal mountain systems	84.9 (2.7)	20.3 (3.7)	3.2 (1.8)
Polar	98.6 (0.8)	NA	NA

Source: Own elaboration

Note: All statistics are based on the probability error matrix. For further details see annex 5. Numbers in parenthesis show the 95% confidence interval. Samples sizes for forest were too small for desert and polar biomes, noted in italics and with NA.

The data show zonal variation. Ecozones with open forest of low tree height and more frequent agricultural tree plantations show lower accuracies and higher errors than ecozones with dense, high forest cover, with the exception of the boreal belt. The comparison between error maps (Figure 26 and Figure 27) shows a generally higher and widely spread commission error and some distinct regional patterns. For instance, commission errors are high in Eastern Brazil and more widespread in Central Africa, but the omission errors are low. This indicates ecozones for which forest area tends to be overestimated compared to our reference data. High omission errors in steppe and shrubland ecozones, e.g. in the USA west of the Mississippi or in the Argentinian pampa are less worrying because there is a generally low forest presence.

Figure 25. Overall accuracy in GFC 2020 version 2 for global ecological zones.



Source: FAO Global ecological zones.



Figure 26. Commission error for forest in GFC 2020 version 2 for global ecological zones.

Figure 27. Omission error for forest in GFC 2020 version 2 for global ecological zones.



Source: FAO Global ecological zones.

3.4.3 Accuracy maps

We produced maps of 1x1 degree to illustrate the spatial variability of the overall accuracy and omission and commission error for forest. As the spatial sampling density is too low, we select all samples within a 11x11 degree kernel with the target grid in the centre. All samples within this window have equal weights. The overall accuracy and commission and omission error of each cell are based on the raw sample counts.

Figure 28 shows the overall accuracy for each 1x1 degree cell. Overall accuracies are between 70 and 100 percent. The lowest accuracies are in the Cerrado region of eastern Brazil and in northern-central Siberia. Areas of medium accuracy of around 80 percent are in south-eastern Africa, the

northern part of the Canadian and Alaskan boreal belt and continental Southeast Asia. Notably, regions with dense tropical and temperate forests such as the Amazon, the Congo basin or forests in the USA show highest accuracies.



Figure 28. Overall accuracy from sample counts for 1x1 degree cells calculated for a 11x11 degree kernel.

Source: GISCO 2020. Own elaboration.

Figure 29 and Figure 30 depict the commission and omission errors, respectively, in 1x1 degree cells calculated for a 11x11 degree window if there were at least 20 forest samples in the reference set. Overall commission errors are more dominant than omission errors in both, magnitude and area. This is in agreement with the general finding of more commission and omission error (see Table 4, 18% vs 8%, respectively). Commission errors are highest in the Cerrado region of Eastern Brazil, which corresponds to previous findings of high confusion between forest and reference samples labelled as other wooded land. Other areas of high commission error are Spain, the southern tip of India and Eastern Africa. The main characteristic of those regions are open dry forests. The centre of Australia shows highest omission errors, which are due to borderline cases with tree height and density. Kenya is another nucleus of higher omission errors.

Figure 29. Commission error from sample counts for 1x1 degree cells calculated for a 11x11 degree kernel.



Source: GISCO 2020. Own elaboration. Note: The map only displays cells for which the reference set had at least 20 forest samples within the 11x11 degree window.



Figure 30. Omission error from sample counts for 1x1 degree cells calculated for a 11x11 degree kernel.

Source: GISCO 2020. Own elaboration. Note: The map only displays cells for which the reference set had at least 20 forest samples within the 11x11 degree window.

4 Conclusions

4.1 Key outcomes

The JRC developed an assessment protocol for forest/non-forest interpretation from high spatial resolution image sources. The definition of forest in the reference set follows the definition as set out in the EUDR, which is similar to the FAO Global Forest Resources Assessment. This reference set will be used to assess the current and forthcoming versions of the Global Forest Cover map for the year 2020, and may be utilized for the assessment of global forest maps from other sources for the year 2020. The protocol includes a more detailed characterization of non-forest land that helps to understand the commission error, i.e. the misclassification of non-forest land as forest in the map. This protocol was translated to a decision tree which be easily explained and followed by interpreters.

A set of samples underwent double blind interpretation, which included all samples labelled low confidence by the first interpreter and a set complement of randomly selected samples as control points. The reinterpretation of samples with low confidence by a second interpreter allows for an increased assurance that the correct label was set, e.g. if both interpreters agreed or if the second interpreter was more confident with the assignment. Overall this strategy leads towards a robust yet unbiased reference set. The analysis of control points allows to assess the agreement between reviewers for the same sample.

The global map accuracy is very high (91%). The commission error of 18% supersedes the risk that forest was omitted in the map (8%). These global probability estimates do not allow for conclusions about map accuracies at regional or local level, because they include all land areas, including deserts where there is clearly no forest or dense forest areas where misclassification is unlikely. For the assessment of regional disparities we stratified the global data by continents or ecozones, again obtaining probability estimates for the overall accuracy and misclassification of forest. Regions with dry and open forests or complex landscapes are more prone to higher misclassification, which for the direction (over- or underestimation of forest) differs among the regions. In terms of confusion by non-forest categories, highest are issues of small patches with possibly misalignment of the forest edge and with other wooded land, which is a transitional category between forest and non-woody vegetation. Confusions with agricultural tree plantation is still present but was reduced by targeted improvements in the second version of GFC2020.

The analysis of control points shows a good agreement of above 90% in all regions between the first and second interpreter (globally 93%). There is nearly a balance between confusion in labelling. Regionally different labels cluster in area of open or dry forests in Eastern Brazil, Africa, Europe, and Australia. This results adds confidence that the reference labels are of high quality with no regional bias. There are three reasons for labelling differences: 1) geometric issues when interpreting samples close to the edge of forest, 2) ambiguity in the interpretation especially for landscapes with scarce forest coverage, low tree height or unclear land use, 3) different levels of experience and training. Even though all interpreters had the same training material and guidance, there could be different perceptions for challenging interpretations.

The bias towards commission error results in a forest area of 4,562 Mio ha in GFC2020 version 2, which is 13% larger than the estimate from the reference data (4,021 Mio ha). Considering the intended map use as a support tool for operators and traders in the risk assessment of the EUDR, the overestimation of the forest area is a minor concern. The JRC recommends to use the Global Forest Cover map for the year 2020 as an initial filter which should be enriched with

complementary data or followed up by more detailed checks by operators against other sources. This way, false alarms by mapping forest in areas where there is no forest in reality, would be followed up and corrected in additional checks. Conversely, missing alarms, omitting the mapping forest areas in the map, could result in more serious omissions in the risk assessment by operators. Therefore it is important to understand that the map of Global Forest Cover for the year 2020 is not legally binding. The overlap between a declared point or polygon in a due diligence statement with forest in the map does not imply deforestation, but likewise the coincidence with non-forest in the map does not imply no deforestation. We strongly recommend to gather additional sources or complement the assessment against GFC 2020 with other checks for a solid risk assessment of the declared points or plots of land, e.g. Verhegghen et al. (2024).

4.2 Lessons learned

Even though the assessment protocol was put in place before starting the interpretations, some minor adjustments took place during the first days of practise (for the first interpretation, only). This approach is practical as several experienced interpreters provide feedback for a meaningful number of samples. On the other hand, this led to some reinterpretations, which required additional resources from those interpreters.

In the assignment of the confidence the protocol only allowed for two levels, high or low confidence. This was considered useful, as otherwise interpreters tend to assign many intermediate levels. On the other hand, it would have been useful to distinguish the type of low confidence, notably if low confidence is due to a geometric issue of the sample location being placed close to the edge of a forest patch or if the sample interpretation has a thematic ambiguity, e.g. due to low tree height, high openness of the forest cover, unclear land use, etc. Recording this additional information could have shed more light into labelling errors or understanding challenges, without the need for substantially more time for the interpretation. All those differences could have been logged under the low confidence category, e.g. "low confidence due to geometry", "low confidence due to low tree height", etc.

Even though the training material was the same for all interpreters and each interpreter participated in a group or individual training session of approximately 1h and the possibility for a check in session after labelling a small set of samples, some differences in the interpretation could not be overcome. This is partly due to the nature of the task and cannot be fully overcome. However some more examples and illustrations could have been helpful.

In terms of map accuracy of the second version of the Global Forest Cover map for the year 2020, we noted surprisingly high commission errors in Eastern Brazil (Cerrado region) and in the ecotone between boreal forests and the tundra ecozone in North America which increased compared to the first version. We also noted the contrary, i.e. more omission errors in continental Southeast Asia for which the forest area decreased in the second version. This will require some in depth analysis of the mapping algorithm for the adjustments we made, but possibly also some reinterpretation of the reference data if the algorithm is found to map forests correctly. Other areas for which the map should be reviewed in for the third version are Australia and Mediterranean Europe, notably Spain. On the positive side, the adjustments for West Africa with significant overestimations of Coffee and Cocoa plantations was corrected in version 2.

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List of abbreviations and definitions

Abbreviations	Definitions
CGLOPs	Copernicus Global Land Operations
EUDR	Regulation (EU) 2023/1115 of the European Parliament and of the Council of 31 May 2023 on the making available on the Union market and the export from the Union of certain commodities and products associated with deforestation and forest degradation and repealing Regulation (EU) No 995/2010
FAO	Food and Agriculture Organization of the United Nations
FRA	Global Forest Resources Assessment
GAUL	Global Administrative Units Layer
GFC2020	Map of Global forest Cover for year 2020
GFT2020	Map of Global Forest Types for year 2020
GISCO	Geographic Information System of the Commission
IIASA	International Institute for Applied Systems Analysis
JRC	Joint Research Center
MMU	Minimum mapping unit
NICFI	Norway's International Climate and Forest Initiative

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Annexes

Annex 1. Forest and forest type definitions in the EUDR

The following definitions are set out in Article 2 of the EUDR (EU 2023). Underlines terms indicate additional definitions.

'forest' means land spanning more than 0,5 hectares with trees higher than 5 metres and a canopy cover of more than 10 %, or trees able to reach those thresholds in situ, excluding land that is predominantly under <u>agricultural</u> or urban land <u>use</u>;

'agricultural use' means the use of land for the purpose of agriculture, including for <u>agricultural</u> <u>plantations</u> and set-aside agricultural areas, and for rearing livestock;

'agricultural plantation' means land with tree stands in agricultural production systems, such as fruit tree plantations, oil palm plantations, olive orchards and agroforestry systems where crops are grown under tree cover; it includes all plantations of <u>relevant commodities</u> other than wood; agricultural plantations are excluded from the definition of 'forest';

'relevant commodities' means cattle, cocoa, coffee, oil palm, rubber, soya and wood;

'primary forest' means naturally regenerated forest of native tree species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed;

'naturally regenerating forest' means forest predominantly composed of trees established through natural regeneration; it includes any of the following:

- (a) forests for which it is not possible to distinguish whether planted or naturally regenerated;
- (b) forests with a mix of naturally regenerated native tree species and planted or seeded trees, and where the naturally regenerated trees are expected to constitute the major part of the growing stock at stand maturity;
- (c) coppice from trees originally established through natural regeneration;
- (d) naturally regenerated trees of introduced species;

'planted forest' means forest predominantly composed of trees established through planting and/or deliberate seeding, provided that the planted or seeded trees are expected to constitute more than 50 % of the growing stock at maturity; it includes coppice from trees that were originally planted or seeded;

'plantation forest' means a planted forest that is intensively managed and meets, at planting and stand maturity, all the following criteria: one or two species, even age class, and regular spacing; it includes short rotation plantations for wood, fibre and energy, and excludes forests planted for protection or ecosystem restoration, as well as forests established through planting or seeding, which at stand maturity resemble or will resemble naturally regenerating forests;

'other wooded land' means land not classified as 'forest' spanning more than 0,5 hectares, with trees higher than 5 metres and a canopy cover of 5 to 10 %, or trees able to reach those thresholds in situ, or with a combined cover of shrubs, bushes and trees above 10 %, excluding land that is predominantly under agricultural or urban land use;

'deforestation-free' means:

- (a) that the relevant products contain, have been fed with or have been made using, relevant commodities that were produced on land that has not been subject to deforestation after 31 December, 2020; and
- (b) in the case of relevant products that contain or have been made using wood, that the wood has been harvested from the forest without inducing forest degradation after 31 December, 2020;

'deforestation' means the conversion of forest to agricultural use, whether human-induced or not;

'forest degradation' means structural changes to forest cover, taking the form of the conversion of:

- (a) primary forests or naturally regenerating forests into plantation forests or into other wooded land; or
- (b) primary forests into planted forests;

'relevant products' means products listed in Annex I that contain, have been fed with or have been made using relevant commodities;

Annex 2. Forest and forest type definitions by the FAO

The following definitions are set out in the Terms and Definitions for the Global Forest Resources Assessment (FRA) 2020 (FAO 2018). Definitions of these terms are identical or highly similar in the Terms and Definitions for the FRA 2025 (FAO 2023).

'forest' Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.

Explanatory notes

- 1. Forest is determined both by the presence of trees and the absence of other predominant land uses. The trees should be able to reach a minimum height of 5 meters in situ.
- 2. Includes areas with young trees that have not yet reached but which are expected to reach a canopy cover of 10 percent and tree height of 5 meters. It also includes areas that are temporarily unstocked due to clear-cutting as part of a forest management practice or natural disasters, and which are expected to be regenerated within 5 years. Local conditions may, in exceptional cases, justify that a longer time frame is used.
- 3. Includes forest roads, firebreaks and other small open areas; forest in national parks, nature reserves and other protected areas such as those of specific environmental, scientific, historical, cultural or spiritual interest.
- 4. Includes windbreaks, shelterbelts and corridors of trees with an area of more than 0.5 hectares and width of more than 20 meters.
- Includes abandoned shifting cultivation land with a regeneration of trees that have, or are expected to reach, a canopy cover of 10 percent and tree height of 5 meters.

- 6. Includes areas with mangroves in tidal zones, regardless whether this area is classified as land area or not.
- 7. Includes rubber-wood, cork oak and Christmas tree plantations.
- 8. Includes areas with bamboo and palms provided that land use, height and canopy cover criteria are met.
- Includes areas outside the legally designated forest land which meet the definition of "forest".
- 10. Excludes tree stands in agricultural production systems, such as fruit tree plantations, oil palm plantations, olive orchards and agroforestry systems when crops are grown under tree cover. Note: Some agroforestry systems such as the "Taungya" system where crops are grown only during the first years of the forest rotation should be classified as forest.

'primary forest' Naturally regenerated forest of native tree species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed.

Explanatory notes

- 1. Includes both pristine and managed forests that meet the definition.
- 2. Includes forests where indigenous peoples engage in traditional forest stewardship activities that meet the definition.
- Includes forest with visible signs of abiotic damages (such as storm, snow, drought, fire) and biotic damages (such as insects, pests and diseases).
- 4. Excludes forests where hunting, poaching, trapping or gathering have caused significant native species loss or disturbance to ecological processes.
- 5. Some key characteristics of primary forests are:
 - they show natural forest dynamics, such as natural tree species composition, occurrence of dead wood, natural age structure and natural regeneration processes;
 - the area is large enough to maintain its natural ecological processes;
 - there has been no known significant human intervention or the last significant human intervention was long enough ago to have allowed the natural species composition and processes to have become re-established.

'naturally regenerating forest' Forest predominantly composed of trees established through natural regeneration.

Explanatory notes

- Includes forests for which it is not possible to distinguish whether planted or naturally regenerated.
- 2. Includes forests with a mix of naturally regenerated native tree species and planted/seeded trees, and where the naturally regenerated trees are expected to constitute the major part of the growing stock at stand maturity.
- 3. Includes coppice from trees originally established through natural regeneration.

4. Includes naturally regenerated trees of introduced species.

'planted forest' Forest predominantly composed of trees established through planting and/or deliberate seeding.

Explanatory notes

- 1. In this context, predominantly means that the planted/seeded trees are expected to constitute more than 50 percent of the growing stock at maturity.
- 2. Includes coppice from trees that were originally planted or seeded.

'plantation forest' Planted Forest that is intensively managed and meet ALL the following criteria at planting and stand maturity: one or two species, even age class, and regular spacing.

Explanatory notes

- 1. Specifically includes: short rotation plantation for wood, fibre and energy.
- 2. Specifically excludes: forest planted for protection or ecosystem restoration.
- 3. Specifically excludes: Forest established through planting or seeding which at stand maturity resembles or will resemble naturally regenerating forest

'other wooded land' Land not classified as "Forest", spanning more than 0.5 hectares; with trees higher than 5 meters and a canopy cover of 5-10 percent, or trees able to reach these thresholds in situ; or with a combined cover of shrubs, bushes and trees above 10 percent. It does not include land that is predominantly under agricultural or urban land use.

Explanatory notes

1. The definition above has two options:

-The canopy cover of trees is between 5 and 10 percent; trees should be higher than 5 meters or able to reach 5 meters in situ.

or

-The canopy cover of trees is less than 5 percent but the combined cover of shrubs, bushes and trees is more than 10 percent. Includes areas of shrubs and bushes where no trees are present.

 Includes areas with trees that will not reach a height of 5 meters in situ and with a canopy cover of 10 percent or more, e.g. some alpine tree vegetation types, arid zone mangroves, etc.

'other land with tree cover' Land classified as "other land", spanning more than 0.5 hectares with a canopy cover of more than 10 percent of trees able to reach a height of 5 meters at maturity.

Explanatory notes

- 1. Land use is the key criteria for distinguishing between forest and other land with tree cover.
- Specifically includes: palms (oil, coconut, dates, etc), tree orchards (fruit, nuts, olive, etc), agroforestry and trees in urban settings.

- Includes groups of trees and scattered trees (e g trees outside forest) in agricultural landscapes, parks, gardens and around buildings, provided that area, height and canopy cover criteria are met.
- 4. Includes tree stands in agricultural production systems, such as fruit tree plantations/orchards. In these cases the height threshold can be lower than 5 meters.
- 5. Includes agroforestry systems when crops are grown under tree cover and tree plantations established mainly for other purposes than wood, such as oil palm plantations.
- 6. The different sub-categories of "other land with tree cover" are exclusive and area reported under one sub-category should not be reported for any other sub-categories.
- 7. Excludes scattered trees with a canopy cover less than 10 percent, small groups of trees covering less than 0.5 hectares and tree lines less than 20 meters wide.

Annex 3. Statistics used in the assessment

Table A1. Raw sample counts for first versus second interpretation labelling forest/non-forest for assessment regions of the second interpretation and globally.

	NF-NF	NF-F	F-NF	F-F
North America, Central America and the Caribbean	157	10	7	59
South America	172	9	9	117
Europe	192	19	5	66
Northern Africa	365	14	24	42
Southern Africa	212	24	4	101
Northern and eastern Asia	129	6	1	67
Central and Southern Asia	287	18	4	84
Australia and Oceania	262	11	26	123
Global	1776	111	80	659
Global, high confidence	1714	85	57	593
Global, low confidence	64	24	23	66

Source: Own elaboration

Note: "F"...forest, "NF"...non-forest, the first label indicates the assignment in the first interpretation. Example: NF-F mean non-forest in the first interpretation and forest in the second interpretation.

Annex 4. Error matrices for continental accuracy assessment¹⁴

	Raw cou	nts (Refe	erence)		Proportions [%] (Reference)			
	Non-	Forest	Total	Commission	Non-	Forest	Total	Commission
	forest			[%]	forest			(CI 95) [%]
Non-forest	2,463	73	2,536	2.9	73.6	1.9	75.4	2.5 (0.8)
Forest	231	839	1,070	21.6	6.1	18.5	24.6	24.6 (3.1)
Total	2,694	912	3,606		79.6	20.4	100.0	
Omission	8.6	8.0		91.6	7.6	9.2		92.1 (1.0)
(CI 95) [%]					(1,0)	(2.8)		

Table A2. Error matrix, errors and overall accuracy of GFC2020, version 2 for Africa.

Source: Own elaboration.

Note: Numbers in bold show the overall accuracy. CI 95...95% confidence interval.

Table A3. Error matrix, errors and overall accuracy of GFC2020, version 2 for North and Central America.

	Raw cou	nts (Refe	erence)		Proportions [%] (Reference)			
	Non-	Forest	Total	Commission	Non-	Forest	Total	Commission
	forest			[%]	forest			(CI 95) [%]
Non-forest	1,904	74	1,978	3.7	63.4	2.1	65.5	3.3 (0.9)
Forest	176	863	1,039	16.9	6.3	28.2	34.5	18.1 (2.6)
Total	2,080	937	3,017		69.6	30.4	100.0	
Omission	8.5	7.9		91.7	9.0	7.1		91.6 (1.1)
(CI 95) [%]					(1.3)	(1.8)		

Source: Own elaboration.

Note: Numbers in bold show the overall accuracy. CI 95...95% confidence interval.

Table A4. Error matrix, errors and overall accuracy of GFC2020, version 2 for South America.

	Raw cou	nts (Refe	erence)		Proportions [%] (Reference)			
	Non-	Forest	Total	Commission	Non-	Forest	Total	Commission
	forest			[%]	forest			(CI 95) [%]
Non-forest	1,506	80	1,586	5.0	45.6	2.9	48.4	5.9 (1.3)
Forest	228	1,017	1,245	18.3	8.5	43.1	51.6	16.5 (2.0)
Total	1,734	1,097	2,831		54.1	45.9	100.0	
Omission	13.1	7.3		89.1	15.7	6.2		88.6 (1.2)
(CI 95) [%]					(1.9)	(1.4)		

Source: Own elaboration.

Note: Numbers in bold show the overall accuracy. CI 95...95% confidence interval.

Table A5. Error matrix, errors and overall accuracy of GFC2020, version 2 for Asia.

Raw cou	nts (Refe		Proportions [%] (Reference)				
Non-	Forest	Total	Commission	Non-	Forest	Total	Commission
forest			[%]	forest			(CI 95) [%]

¹⁴ The total of samples from the continents does not match the sample total for global assessment. Four samples were located on remote islands that did not fall in any of the continental strata. Given the sample total, this difference is deemed insignificant.

Non-forest	2,711	113	2,824	4.0	76.6	2.5	79.2	3.2 (0.6)
Forest	119	786	905	13.1	2.6	18.2	20.8	12.5 (2.5)
Total	2,830	899	3,729		79.3	20.7	100.0	
Omission	4.2	12.6		93.8	3.3	12.2		94.9 (0.7)
(CI 95) [%]					(0.7)	(2.4)		

Source: Own elaboration.

Note: Numbers in bold show the overall accuracy. CI 95...95% confidence interval.

Table A6. Error matrix, errors and overall accuracy of GFC2020, version 2 for Europe.

	Raw cou	nts (Refe	rence)		Proportions [%] (Reference)			
	Non-	Forest	Total	Commission	Non-	Forest	Total	Commission
	forest			[%]	forest			(CI 95) [%]
Non-forest	2,038	47	2,085		59.3	1.7	61.0	2.9 (0.8)
Forest	243	802	1,045	2.3	8.8	30.2	39.0	22.5 (2.6)
Total	2,281	849	3,130	23.3	68.0	32.0	100.0	
Omission	10.7	5.5		90.7	12.9	5.5		89.5 (1.2)
(CI 95) [%]					(1.6)	(1.6)		

Source: Own elaboration.

Note: Numbers in bold show the overall accuracy. CI 95...95% confidence interval.

Table A7. Error matrix, errors and overall accuracy of GFC2020, version 2 for Oceania.

	Raw cou	nts (Refe	erence)		Proportions [%] (Reference)			
	Non-	Forest	Total	Commission	Non-	Forest	Total	Commission
	forest			[%]	forest			(CI 95) [%]
Non-forest	1,824	166	1,990	8.3	67.9	7.3	75.2	9.6 (1.6)
Forest	142	882	1,024	13.9	3.1	21.7	24.8	12.6 (2.8)
Total	1,966	1,048	3,014		71.1	28.9	100.0	
Omission	7.2	15.8		89.8	4.4	25.0		89.6 (1.4)
(CI 95) [%]					(1.0)	(3.6)		

Source: Own elaboration.

Note: Numbers in bold show the overall accuracy. CI 95...95% confidence interval.

Table A8. Error matrix, errors and overall accuracy of GFC2020, version 2 for Russia.

	Raw cou	nts (Refe	erence)		Proportions [%] (Reference)			
	Non-	Forest	Total	Commission	Non-	Forest	Total	Commission
	forest			[%]	forest			(CI 95) [%]
Non-forest	1,244	24	1,268	1.9	43.0	1.2	44.2	2.7 (1.2)
Forest	186	827	1,013	18.4	10.1	45.7	55.8	18.1 (2.4)
Total	1,430	851	2,281		53.1	46.9	100.0	
Omission	13.0	2.8		90.8	19.0	2.6		88.7 (1.5)
(CI 95) [%]					(2.4)	(1.1)		

Source: Own elaboration.

Note: Numbers in bold show the overall accuracy. CI 95...95% confidence interval.

Annex 5. Error matrices for accuracy assessment by ecological zones

Table A9. Error matrix, errors and	l overall accuracy of GF	C2020, version 2 for	Tropical rain forest.
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	Raw cou	nts (Refe	erence)		Proportions [%] (Reference)			
	Non-	Forest	Total	Commission	Non-	Forest	Total	Commission
	forest			[%]	forest			(CI 95) [%]
Non-forest	930	120	1,050	11.4	25.4	4.4	29.8	14.6 (3.0)
Forest	183	1,791	1,974	9.3	5.0	65.2	70.2	7.2 (1.4)
Total	1,113	1,911	3,024		30.4	69.6	100.0	
Omission	16.4	6.3		90.0	16.5	6.3		90.6 (1.3)
(CI 95) [%]					(3.0)	(1.3)		

Source: Own elaboration.

Note: Numbers in bold show the overall accuracy. CI 95...95% confidence interval.

Table A10. Error matrix, errors and overall accuracy of GFC2020, version 2 for Tropical moist forest.

	Raw counts (Reference)				Proportions [%] (Reference)			
	Non-	Forest	Total	Commission	Non-	Forest	Total	Commission
	forest			[%]	forest			(CI 95) [%]
Non-forest	951	50	1001	5.0	48.1	2.9	51.0	5.7 (1.8)
Forest	200	523	723	27.7	13.6	35.4	49.0	27.8 (3.7)
Total	1,151	573	1,724		61.7	38.3	100.0	
Omission	17.4	8.7		85.5	22.1	7.7		83.4 (2.1)
(CI 95) [%]					(3.0)	(2.4)		

Source: Own elaboration.

Note: Numbers in bold show the overall accuracy. CI 95 ... 95% confidence interval.

Table A11. Error matrix, errors and overall accuracy of GFC2020, version 2 for Tropical fry forest.

	Raw cou	nts (Refe	erence)		Proporti	ons [%] (F	Reference	ce)
	Non-	Forest	Total	Commission	Non-	Forest	Total	Commission
	forest			[%]	forest			(CI 95) [%]
Non-forest	596	50	646	7.7	54.0	4.9	58.8	8.2 (2.5)
Forest	135	280	415	32.5	13.5	27.6	41.2	32.9 (5.0)
Total	731	330	1,061		67.5	32.5	100.0	
Omission	18.5	15.2		82.6	20.0	14.9		81.6 (2.6)
(CI 95) [%]					(3.3)	(4.2)		

Source: Own elaboration.

Note: Numbers in bold show the overall accuracy. CI 95...95% confidence interval.

Table A12. Error matrix, errors and overall accuracy of GFC2020, version 2 for Tropical shrubland.

	Raw cou	nts (Refe	erence)		Proporti	ons [%] (I	Referen	ce)
	Non-	Forest	Total	Commission	Non-	Forest	Total	Commission
	forest			[%]	forest			(CI 95) [%]
Non-forest	788	50	838	6.0	85.2	3.3	88.5	3.8 (1.1)
Forest	44	115	159	27.7	3.6	7.9	11.5	31.6 (8.6)
Total	832	165	997		88.8	11.2	100.0	
Omission	5.3	30.3		90.6	4.1	29.8		93.0 (1.5)
(CI 95) [%]					(1.2)	(8.2)		

Table A13. Error matrix, errors and overall accuracy of GFC2020, version 2 for Tropical desert.

	Raw cou	nts (Refe	erence)		Proporti	ons [%] (Referen	ce)
	Non-	Forest	Total	Commission	Non-	Forest	Total	Commission
	Torest			[%0]	Torest			(CI 95) [%]
Non-forest	538	8	546	NA	99.1	0.9	100.0	NA
Forest	2	0	2	NA	0.0	NA	0.0	NA
Total	540	8	548		99.1	0.9	100.0	
Omission	NA	NA		98.2	NA	NA		99.1 (1.2)
(CI 95) [%]								

Source: Own elaboration.

Note: Numbers in bold show the overall accuracy. CI 95...95% confidence interval.

Table A14. Error matrix, errors and overall accuracy of GFC2020, version 2 for Tropical mountain systems.

	Raw cou	nts (Refe	erence)		Proporti	ons [%] (I	Referen	ce)
	Non-	Forest	Total	Commission	Non-	Forest	Total	Commission
	forest			[%]	forest			(CI 95) [%]
Non-forest	363	14	377	3.7	56.3	1.9	58.1	3.2 (2.0)
Forest	58	212	270	21.5	7.9	34.0	41.9	18.8 (5.0)
Total	421	226	647		64.1	35.9	100.0	
Omission	13.8	6.2		88.9	12.3	5.2		90.3 (2.5)
(CI 95) [%]					(3.3)	(3.3)		

Source: Own elaboration.

Note: Numbers in bold show the overall accuracy. CI 95...95% confidence interval.

 Table A15. Error matrix, errors and overall accuracy of GFC2020, version 2 for Subtropical humid forest.

	Raw cou	nts (Refe	rence)		Proporti	ons [%] (I	Referen	ce)
	Non-	Forest	Total	Commission	Non-	Forest	Total	Commission
	forest			[%]	forest			(CI 95) [%]
Non-forest	534	28	562	5.0	49.7	2.7	52.4	5.2 (2.4)
Forest	43	315	358	12.0	6.0	41.6	47.6	12.5 (4.1)
Total	577	343	920		55.6	44.4	100.0	
Omission	7.5	8.2		92.3	10.7	6.2		91.3 (2.3)
(CI 95) [%]					(3.5)	(2.9)		

Source: Own elaboration.

Note: Numbers in bold show the overall accuracy. CI 95...95% confidence interval.

Table A16. Error matrix, errors and overall accuracy of GFC2020, version 2 for Subtropical dry forest.

	Raw cou	nts (Refe		Proporti	ons [%] (I	Referen	ce)	
	Non-	Forest	Total	Commission	Non-	Forest	Total	Commission
	forest			[%]	forest			(CI 95) [%]
Non-forest	621	19	640	3.0	63.3	2.7	66.0	4.0 (2.1)
Forest	94	164	258	36.4	11.4	22.6	34.0	33.4 (7.4)
Total	715	183	898		74.7	25.3	100.0	
Omission	13.1	10.4		87.4	15.2	10.5		86.0 (3.1)
(CI 95) [%]					(3.6)	(5.5)		

Table A17. Error matrix, errors and overall accuracy of GFC2020, version 2 for Subtropical steppe.

	Raw cou	ints (Refe	erence)		Proporti	ons [%] (I	Referen	ce)
	Non- forest	Forest	Total	Commission [%]	Non- forest	Forest	Total	Commission (Cl 95) [%]
Non-forest	831	36	867	4.2	84.9	3.7	88.6	4.2 (1.5)
Forest	26	108	134	19.4	2.0	9.3	11.4	17.9 (7.4)
Total	857	144	1,001		86.9	13.1	100.0	
Omission	3.0	25.0		93.8	2.3	28.6		94.2 (1.6)
(CI 95) [%]					(1.0)	(9.0)		

Source: Own elaboration.

Note: Numbers in bold show the overall accuracy. CI 95...95% confidence interval.

Table A18. Error matrix, errors and overall accuracy of GFC2020, version 2 for Subtropical desert.

	Raw counts (Reference)				Proportions [%] (Reference)			
	Non-	Forest	Total	Commission	Non-	Forest	Total	Commission
	forest			[%]	forest			(CI 95) [%]
Non-forest	1,076	60	1,136	NA	93.5	4.8	98.3	NA
Forest	7	15	22	NA	0.5	1.2	1.7	NA
Total	1,083	75	1,158		94.1	5.9	100.0	
Omission	NA	NA		94.2	NA	NA		94.7 (1.3)
(CI 95) [%]								

Source: Own elaboration.

Note: Numbers in bold show the overall accuracy. CI 95...95% confidence interval.

Table A19. Error matrix, errors and overall accuracy of GFC2020, version 2 for Subtropical mountain systems.

	Raw cou	nts (Refe	erence)		Proporti	ons [%] (Referen	ce)
	Non-	Forest	Total	Commission	Non-	Forest	Total	Commission
	forest			[%]	forest			(CI 95) [%]
Non-forest	451	8	459	1.7	72.8	1.0	73.8	1.4 (1.0)
Forest	33	157	190	17.4	3.6	22.5	26.2	13.9 (5.2)
Total	484	165	649		76.4	23.6	100.0	
Omission	6.8	4.8		93.7	4.8	4.4		95.3 (1.6)
(CI 95) [%]					(1.8)	(3.1)		

Source: Own elaboration.

Note: Numbers in bold show the overall accuracy. CI 95...95% confidence interval.

Table A20. Error matrix, errors and overall accuracy of GFC2020, version 2 for Temperate oceanic forest.

	Raw cou	nts (Refe	erence)		Proporti	ons [%] (Referen	ce)
	Non-	Forest	Total	Commission	Non-	Forest	Total	Commission
	forest			[%]	forest			(CI 95) [%]
Non-forest	644	19	663	2.9	63.9	1.9	65.8	2.8 (1.4)
Forest	51	203	254	20.1	7.4	26.8	34.2	21.6 (6.0)
Total	695	222	917		71.3	28.7	100.0	
Omission	7.3	8.6		92.4	10.4	6.5		90.8 (2.4)
(CI 95) [%]					(3.1)	(3.2)		

Table A21. Error matrix, errors and overall accuracy of GFC2020, version 2 for Temperate continental forest.

	Raw cou	ints (Refe	erence)		Proporti	ions [%] (Referen	ce)
	Non- forest	Forest	Total	Commission [%]	Non- forest	Forest	Total	Commission (Cl 95) [%]
Non-forest	891	35	926	3.8	51.9	2.7	54.6	5.0 (1.9)
Forest	91	524	615	14.8	5.8	39.5	45.4	12.8 (2.9)
Total	982	559	1,541		57.7	42.3	100.0	
Omission	9.3	6.3		91.8	10.1	6.4		91.5 (1.7)
(CI 95) [%]					(2.3)	(2.4)		

Source: Own elaboration.

Note: Numbers in bold show the overall accuracy. CI 95...95% confidence interval.

Table A22. Error matrix, errors and overall accuracy of GFC2020, version 2 for Temperate steppe.

	Raw counts (Reference)				Proportions [%] (Reference)			
	Non-	Forest	Total	Commission	Non-	Forest	Total	Commission
	forest			[%]	forest			(CI 95) [%]
Non-forest	770	15	785	1.9	91.5	2.2	93.7	2.3 (1.3)
Forest	13	45	58	22.4	1.5	4.8	6.3	23.9 (13.4)
Total	783	60	843		93.0	7.0	100.0	
Omission	1.7	25.0		96.7	1.6	31.3		96.3 (1.5)
(CI 95) [%]					(1.0)	(13.9)		

Source: Own elaboration.

Note: Numbers in bold show the overall accuracy. CI 95...95% confidence interval.

Table A23. Error matrix, errors and overall accuracy of GFC2020, version 2 for Temperate desert.

	Raw counts (Reference)				Proportions [%] (Reference)			
	Non-	Forest	Total	Commission	Non-	Forest	Total	Commission
	forest			[%]	forest			(CI 95) [%]
Non-forest	639	1	640	NA	99.5	0.0	99.5	NA
Forest	0	2	2	NA	NA	0.5	0.5	NA
Total	639	3	642		99.5	0.5	100.0	
Omission	NA	NA		99.8	NA	NA		100.0 (0.0)
(CI 95) [%]								

Source: Own elaboration.

Note: Numbers in bold show the overall accuracy. CI 95...95% confidence interval.

Table A24. Error matrix, errors and overall accuracy of GFC2020, version 2 for Temperate mountain systems.

	Raw counts (Reference)				Proportions [%] (Reference)			
	Non- Forest Total Commission				Non-	Forest	Total	Commission
	forest			[%]	forest			(CI 95) [%]
Non-forest	827	10	837	1.2	63.6	0.9	64.6	1.4 (1.1)
Forest	58	408	466	12.4	4.3	31.1	35.4	12.1 (3.9)
Total	885	418	1,303		67.9	32.1	100.0	
Omission	6.6	2.4		94.8	6.3	2.9		94.8 (1.6)
(CI 95) [%]					(2.0)	(2.3)		

Table A25. Error matrix, errors and overall accuracy of GFC2020, version 2 for Boreal coniferous forest.

	Raw counts (Reference)				Proportions [%] (Reference)			
	Non- forest	Forest	Total	Commission [%]	Non- forest	Forest	Total	Commission (Cl 95) [%]
Non-forest	315	17	332	5.1	22.3	1.3	23.6	5.5 (3.0)
Forest	130	672	802	16.2	13.0	63.4	76.4	17.0 (2.9)
Total	445	689	1,134		35.3	64.7	100.0	
Omission	29.2	2.5		87.0	36.8	2.0		85.7 (2.4)
(CI 95) [%]					(5.0)	(1.1)		

Source: Own elaboration.

Note: Numbers in bold show the overall accuracy. CI 95...95% confidence interval.

Table A26. Error matrix, errors and overall accuracy of GFC2020, version 2 for Boreal tundra woodland.

	Raw counts (Reference)				Proportions [%] (Reference)			
	Non-	Forest	Total	Commission	Non-	Forest	Total	Commission
	forest			[%]	forest			(CI 95) [%]
Non-forest	217	15	232	6.5	53.8	4.2	58.0	7.3 (3.8)
Forest	50	98	148	33.8	13.7	28.3	42.0	32.5 (7.7)
Total	267	113	380		67.4	32.6	100.0	
Omission	18.7	13.3		82.9	20.3	12.9		82.1 (4.1)
(CI 95) [%]					(5.2)	(6.5)		

Source: Own elaboration.

Note: Numbers in bold show the overall accuracy. CI 95...95% confidence interval.

 Table A27. Error matrix, errors and overall accuracy of GFC2020, version 2 for Boreal mountain systems.

	Raw counts (Reference)				Proportions [%] (Reference)			
	Non-	Forest	Total	Commission	Non-	Forest	Total	Commission
	forest			[%]	forest			(CI 95) [%]
Non-forest	430	17	447	3.8	32.5	1.7	34.3	5.1 (2.8)
Forest	90	351	441	20.4	13.3	52.4	65.7	20.3 (3.7)
Total	520	368	888		45.9	54.1	100.0	
Omission	17.3	4.6		88.0	29.1	3.2		84.9 (2.7)
(CI 95) [%]					(5.0)	(1.8)		

Source: Own elaboration.

Note: Numbers in bold show the overall accuracy. CI 95...95% confidence interval.

Table A28. Error matrix, errors and overall accuracy of GFC2020, version 2 for Polar.

	Raw counts (Reference)				Proportions [%] (Reference)			
	Non- Forest Total Commission				Non-	Forest	Total	Commission
	forest			[%]	forest			(CI 95) [%]
Non-forest	1,019	0	1,019	NA	97.0	NA	97.0	NA
Forest	10	11	21	NA	1.4	1.6	3.0	NA
Total	1,029	11	1,040		98.4	1.6	100.0	
Omission	NA	NA		99.0	NA	NA		98.6 (0.8)
(CI 95) [%]								

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From: Sent: To: Subject: s 22(1)(a)(ii) Saturday, 22 March 2025 3:20 AM s 22(1)(a)(ii) FW: Invitation to the 31st meeting of the Deforestation Platform of 4 March 2025 [SEC=UNOFFICIAL]

From: s 22(1)(a)(ii)
Sent: Thursday, 23 January 2025 2:32 PM
To: 'to' <ENV-DEFORESTATION@ec.europa.eu>
Subject: Invitation to the 31st meeting of the Deforestation Platform of 4 March 2025 [SEC=UNOFFICIAL]

Hi

I will attend in person on behalf of Australia.

Best s 22(1)(a)(ii)

s 22(1)(a)(ii) Adviser – Agricultural Affairs

Australian Mission to the European Union

Avenue des Arts 56, 1000 Brussels E: s 22(1)(a)(ii) | T: s 22(1)(a)(ii) @AustraliaEU | www.eu.mission.gov.au



The department acknowledges the Traditional Custodians of Australia and their continuing connection to land, sea environment, water and community. We pay our respect to the Traditional Custodians, their culture, and elders both past and present.