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GOZDARSKI INŠTITUT SLOVENIJE

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ZAKLJUČNO POROČILO : UN – ECE/FAO TEMPERATE AND BOREAL FOREST RESOURCES ASSESSMENT 2000 for SLOVENIA

Dr. Milan Hočevar, Lecn Behin

Ljubljana, 15 septembra 1999

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Klj. b.: gozd, gozdarstvo, gozdna inventura, gozdna lastništvo, zakonodajno stanje,
dunecje gozda, biološka pestovost, Slovenija, FAO projekt



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ZAKLJUČNO POROČILO PROJEKTA: UN – ECE/FAO TEMPERATE AND BOREAL FOREST RESOURCES ASSESSMENT 2000 for SLOVENIA

Dr. Milan Hočevar, Leon Behin

1. Osnovni podatki o projektu

V okvirju globalne ocene gozdnih resursov na Zemlji, ki jih periodično opravlja FAO, je sklenila mešana delovna skupina FAO/ECE za Gozdno ekonomijo in statistiko na sestanku v Kotki, Finska 1996, izvesti popis gozdov borealnega in zmernega pasu ECE dežel ter držav v razvoju izven omenjanega območja. V Kotki je bil pripravljen prvi osnutek zelo obsežnega in celovitega vprašalnika, ki je bil kasneje dopolnjen na sestanku v Gmundnu (oktober, 1997; Hočevar, 1997). Celotna organizacija popisa je potekala v tesnem sodelovanju med ECE, Ženeva in FAO, RIM. Prvi rezultati popisa so bili predstavljeni na tretji ministrski konferenci o varovanju gozdov v Evropi, končno poročilo pa bo predstavljeno v letu 2000 v obliki pisnega poročila in na internetu. V letu 2000 bodo rezultati popisa tema posebne delavnice na Evropskem gozdarskem inštitutu EFI.

V Sloveniji je projekt potekal pod okriljem Gozdarskega inštituta Slovenije od novembra 1998, celovito slovensko poročilo pa je bilo oddano februarja 1998. Zadnje preverjanje je bilo opravljenov septembru 1999. Kot mednarodno odgovorni korespondent na slovenski strani je bil imenovan prov. dr. Milan Hočevar, uni. dipl. inž. gozd. Leon Behin pa je kot kontaktni sodelavec skrbel za tehnično plat izvedbe popisa.

Glavne zadolžitve je sprejel Gozdarski inštitut Slovenije (GIS), ob pomoči sodelavcev zaposlenih na ZGS (Centralna enota) in MKGP.

V okviru projekta so sodelovali:

GIS:

Dr. Milan Hočevar (odgovorni poročevalec)

Dr. Maja Jurc

Mag. Marko Kovač

Mag. Franc Ferlin

Mag. Lado Kutnar

Mag. Miran Čas

Mag. Gregor Božič

Mag. Mirko Medved

Ogulin Andreja, dipl. inž. kraj. arhit.



Behin Leon, dipl.inž. gozd. (kontaktni sodelavec)

ZGS:

Mag. Živan Veselič

Jošt Jakša, dipl. inž. gozd

MKGP:

Mag. Aleksander Golob

2. Potek dela

Glavnino dela je omenjena skupina opravila od 15. novembra 1997 do 20. januarja 1998. Prvo poročilo je bilo oddano UN-ECE/FAO dne 30.01. 1998. Odgovor na naše poročilo je bil poslan 19.02.1998, v njem so tudi nakazane pomankljivosti, oz. prošnje po dodatnih pojasnilih. Odgovori na zastavljena vprašanja so bili poslani ga. Ines Costa – Luz, ki je bila zadolžena za naše poročilo pri UN-ECE/FAO dne 27.02. 1998. Nova vprašanja so bila dodatno postavljena še 02. 03. in 06. 03. 1998. Zaključno poročilo je bilo oddano 10.03. 1998.

V okviru projekta so bili organizirani trije sestanki delovne skupine, ki so bili namenjeni določitvi referenčnih period, določitvi konkretnih nalog posameznih sodelavcev, reševanju nejasnosti glede vsebine in natančnosti posameznih podatkov, ter časovni uskladitvi dela.

Neposredne kontakte med člani delovne skupine je zagotavljal Behin Leon, ki je skupaj z odgovornim korespondentom tudi dokončno oblikoval oddano poročilo ter vzdrževal mednarodne stike s člani UN – ECE/FAO.

Poročilo je bilo sestavljeno v obliki tabel (programski paket Excel) v angleškem jeziku. Kako je potrebno izpolniti tabele, ter natančne definicije strokovnih terminov, je določil organizator projekta. Vse morebitne nejasnosti so se reševale v kontaktu z g. Alexandor Korotkov (UN-ECE/FAO). Dodatno je bil januarja 1998 odrt poseben e-mail naslov, na katerem so si lahko dopisovali nacionalni korespondenti, ki so sodelovali na tem projektu.

Zadolžitve pri pripravi poročila:

General Forest Resource Information

št. tabele	oznaka	sodelavci	Pripombe
1	Area, main classes	Veselič	Referenčno leto 1996
2	Area, naturalness	Veselič	
3	Area, spec. groups	Veselič, Kovač	
4	Area, high forests	Veselič, Kovač	
5	Area, ownership	Veselič, Golob	
6	Area, hold. structure	Medved, Veselič	
7	Area, changes	Veselič	Primerjava: 1986 in 1996

Biological Diversity and Protection Status

št. tabele	oznaka	sodelavci	Pripombe
8	Area, protec. status	Ogulin, Golob, Veselič	Referenčno leto 1996
9	Tree species	Kutnar	
10	Endangered species	Kutnar, Čas	
11	Regeneration	Božič, Veselič	Povprečje za obdobje 1986 do 1996
12	Planting material	Božič	

Woody supplay

Št. tabele	oznaka	sodelavci	Pripombe
13	Age class distribution ha	Kovač, Hočevnar, Behin	Referenčno leto 1996
14	Species, m3, biomass	Kovač, Behin	
15	Increment	Kovač, Hočevnar, Veselič	
16	Fellings and removals	Veselič	
17	Change growing stock	Kovač, Veselič	Referenčna leta 1986 in 1996

Forest condition

Št. tabele	oznaka	sodelavci	Pripombe
18	Damage to forests	M. Jurc, Jakša	Referenčno leto 1996
19	Forest fire	M. Jurc, Jakša	Perioda od 1986 do 1996
20	Forest condition	Behin	

Protective and socio-economics functions

št. tabele	Oznaka	sodelavci	Pripombe
21	Protection	Golob	Referenčna leta 1986 in 1996
22	Tribal peoples	-----	-----
23	Public use	Golob	Referenčno leto 1996
24	Role of forests	Golob	
25	Value of goods	Golob	

3. Komentar

Pri zajemanju vhodnih podatkov in obdelavi podatkov se je večina sodelavcev srečevala s podobnimi problemi. Posameznih podatkov ni bilo na razpolago, ali pa le ti niso ustrezali definiciji, ki jo je zahteval organizator projekta. Za posamezne parametre je bilo zato potrebno pridobiti s pomočjo strukturnih deležev, ali pa uporabiti navodila in znanstvene izsledke, ki jih je priporočil organizator. Potrebno je opozoriti, da se posamezne definicije parametrov v projektu razlikujejo od tega, kar razumemo pod tem pojmom v slovenskem merilu. Kot osnovno izhodišče pri vnosu podatkov je bilo sprejeto

priporočilo organizatorja, da se posredujejo po mnenju ekspertov najboljši možni podatki (ekspertno mnenje) in ne nujno uradni podatki.

Tabeli št. 1 in 2:

Podatki temeljijo na podlagi dostavljenih podatkov ZGS.

Tabela št. 3:

Tabela je sestavljena s pomočjo podatkov ZGS (sumarne površine), delitev na posamične podskupine pa je izvedena s pomočjo podatkov nacionalnih inventur (GIS, Popis propadanja gozdov 1995) – strukturni deleži.

Tabeli št. 4 in 7:

Enako kot za tabelo št. 3, so tudi tu sumarni podatki ZGS, struktura po posameznih kategorijah pa je dobljena s pomočjo strukturnega deleža, ki ga posamezna kategorija predstavlja v okviru celotne nacionalne inventure (število traktov v posamezni kategoriji).

Tabeli št. 5 in 6:

Zanesljivih podatkov o strukturi lastništva za celotno Slovenijo ni. Zaradi procesa denacionalizacije, ki je v teku, lahko razpolagamo le z bolj ali manj natančnimi ocenami, zaradi česar je delež državnih in privatnih gozdov ocenjen. Stratifikacija privatne lastnine je narejena s pomočjo dosedanje velikosti privatne lastnine in števila lastnikov.

Tabela št. 8:

Tabela je sestavljena na podlagi podatkov ZGS, GIS, MOP in MKGP, vendar popolnih podatkov po posamičnih IUCN kategorijah za gozd v Sloveniji ni. Dodatno težavo predstavlja delitev na gozd in kategorijo »other wooded land«.

Tabela št. 10:

Med tabelami na katere je bilo postavljenih največ vprašanj je bila tabela št. 10. Tabela zahteva popoln pregled nad rastlinskimi in živalskimi vrstami, ki živijo, oz. so vezane na gozd. Popolnih popisov vrst vezanih na gozd v Sloveniji ni, osnovo nudijo le rdeči sezname in dognanja posameznih strokovnjakov s tega področja.

Tabeli št.11 in 12:

Podatki so pridobljeni iz baz podatkov s katerimi razpolagata ZGS in GIS.

Tabela št. 13:

Izračun strukturnih razredov je potekal s pomočjo podatkov pridobljenih z nacionalno inventuro. Osnovo so nudili podatki o zgradbi sestojev na popisnih traktih, kategorije mešanosti in matična podlaga. Med enodobne gozdove so bili vštet sestoji z oznako zgradbe 3, 5, 7 in sestoji na nekarnonatni podlagi (Popis propadanja gozdov, 1995), ki so bili v nadaljevanju razdeljeni na starostne razrede, vse ostale kategorije pa so bile uvrščene v kategorijo raznodobnih gozdov.

Tabela št. 14:

Na podlagi povprečne lesne zaloge (m³/ha), ki je bila pridobljena z nacionalno inventuro je bil izračunan volumen dreves v gozdu. Delež iglavcev in listavcev je bil določen s pomočjo deleža dreves v lesni zalogi. Količina dreves izven gozda in na drugače ogozdenih površinah (other wooded land) je strokovna ocena. Količina mrtvih dreves je dobljena s pomočjo podatkov popisa propadanja gozdov, kjer je osnovo nudila kategorija z nad 90 % osutostjo.

Biomasa posameze kategorije, je izračunana s pomočjo metodologije priporočene s strani UN-ECE/FAO (Methodology of secretariat estimation, 1985).

Tabela št. 15:

Osnovo za izračun letnega prirastka predstavljajo podatki nacionalnih inventur, saj obstajajo podatki o prirastkih na posameznih vzorčnih traktih. S pomočjo preračunavanja teh podatkov je možno za državni nivo oblikovati zanesljive ocene o prirastku. Delež naravnih izgub je ocenjen na podlagi ocene ZGS in zaša 9-10 % letnega prirastka.

OP.: V tabeli 13 in 14 ni vključen podatek o količini drevja pod 10 cm, kajti s temi podatki ne razpolagamo. S simulacijo podatkov Popisa propadanja gozdov je bilo ocenjeno, da delež te kategorije v skupni lesni masi predstavlja max. 1,5 %, kar je manj kot znaša napaka lesne zaloge ($\pm 3,8$ %).

Tabela št. 16:

Osnovo predstavlja Gozdnogospodarski načrti in letna poročila.

Tabela št. 17:

Referenčna perioda št. 1 predstavlja rezultate dobljene pri obnovi Gozdno gospodarskih načrtov za obdobje 1991-2000. Referenčna perioda št. 2, pa podatke pridobljene z nacionalno inventuro.

Tabeli št. 18 in 19:

V tabeli so posamezni podatki zelo nezanesljivi. Če lahko rečemo, da imamo za leto 1996 kolikor toliko zanesljive podatke, pa za obdobje zadnjih desetih let tega ni moč trditi. Za to obdobje je značilno, da se posamezni podatki ocenjujejo v m³, nekateri v ha, drugi spet v denarnih enotah. Točno pretvarjanje med kategorijami je skoraj nemogoče. Kljub temu predloženi podatki predstavljajo okvirje v katerih se vrtijo dejanske poškodbe in škode.

Tabela št. 20:

Podatki temeljijo na podatkih pridobljenih z nacionalno inventuro na vzorčni mreži 4x4 km.

Tabele št. 21, 23, 24 in 25:

Osnovo predstavljajo poročila in podatki MKGP.

Ljubljana, 15.9.1999

Kazalo:

Forest Resource Assessment – SLOVENIA

priloga 1

Enquiry

priloga 2

Terms and Definitions

priloga 3

**ZAKLJUČNO POROČILO:
UN – ECE/FAO TEMPERATE AND BOREAL
FOREST RESOURCES ASSESSMENT 2000 FOR SLOVENIA**

Table 1
Total area by main classes

Purpose: (a) To show the relative importance of forest and other wooded land as compared with other land cover; and (b) to provide the reference area for many other parameters covered in the enquiry.

Country: SLOVENIA

Reference period: 1996

Ref.		Area (1000 ha)
1,1	Total area	2027
1,2	– Inland water	11
1,3	– Land area	2016
1,4	– Forest and other wooded land	1166
1,5	– Forest	1099
1,6	– Other wooded land	67
1,7	– Other land	850

Check: (1,2) Inland water + (1,3) Land area = (1,1) Total area OK
 (1,4) Forest and other wooded land + (1,7) Other land = (1,3) Land area OK
 (1,5) Forest + (1,6) Other wooded land = (1,4) Forest and other wooded land OK

Data source and quality

Source: Forest management plans, yearbook

Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFRA-2000 definitions?

Forest: Yes

Other wooded land: Yes

If adjusted, description of adjustment process: Not attached

Specifications of known deviations from TBFRA-2000 definitions: Not attached

Likely range: Taking account of errors due to measurement, sampling, and adjustment, please indicate the range within which the true value is likely to be, for the following parameters:

Forest: from 1080 to 1150 thousand ha

Other wooded land: from 60 to 100 thousand ha

Comments: Expert assessments are based on the data from the forest management plans.

Table 2
Forest and other wooded land according to "naturalness"

Purpose: To provide an indication of the extent to which the natural forest cover has been modified by man, and the intensity of management.

Country: SLOVENIA

Reference period: 1996

Ref.		Area (1000 ha)
2.1	Forest	(=1.5) 1099
2.2	– Forest undisturbed by man	50
2.3	– Semi-natural forest	1048
2.4	– Plantations	1
2.5	Other wooded land	(=1.6) 67
2.6	– Other wooded land undisturbed by man	0
2.7	– Semi-natural other wooded land	67

Please describe on a separate sheet:

1. The trends in the area of the above classes over the last 100-200 years, concentrating on trends since 1950s, with quantitative estimates, if possible.
2. The nature and driving forces of these structural trends and underlying circumstances.

Check: (2.2) Forest undisturbed by man + (2.3) Semi-natural forest + (2.4) Plantations (2.1) Forest OK

(2.6) Other wooded land undisturbed by man + (2.7) Semi-natural other wooded land + (2.5) Other wooded land OK

Data source and quality

Source: Forest management plans, inquiry

Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFR, A-2000 definitions?

Forest undisturbed by man: Yes

Semi-natural forest: Yes

Plantations: Yes

Other wooded land undisturbed by man: Yes

Semi-natural other wooded land: Yes

If adjusted, description of adjustment process: Not attached

Specifications of known deviations from TBFR, A-2000 definitions: Not attached

Likely range: Taking account of errors due to measurement, sampling, and adjustment,

please indicate the range within which the true value is likely to be, for the following parameters:

Forest undisturbed by man: from 40 to 60 thousand ha

Semi-natural forest: from 1020 to 1100 thousand ha

Plantations: from 0,6 to 1,2 thousand ha

Other wooded land undisturbed by man: from to thousand ha

Semi-natural other wooded land: from 50 to 80 thousand ha

Comments: Other wooded land was assessed by special inventory. Forest undisturbed by man includes natural forest reserves and protection forest

Table 3
Forest and other wooded land according to availability for wood supply

Purpose: To provide an estimate of wood supply potential, broken down by species groups.

Country: SLOVENIA

Reference period: 1996

Ref.		Total (1000 ha)
3.1	Forest, total	(=1.5) 1099
3.2	– Predominantly coniferous	329
3.3	– Predominantly broadleaved	413
3.4	– Predominantly bamboos, palms, etc.	0
3.5	– Mixed	357
3.6	Forest available for wood supply	1035
3.7	- Predominantly coniferous	310
3.8	- Predominantly broadleaved	389
3.9	- Predominantly bamboos, palms, etc.	0
3.10	Mixed	336
3.11	Forest not available for wood supply	64
3.12	For conservation protection reasons	52
3.13	- For economic reasons	12
3.14	Other wooded land	(=1.6) 67
3.15	Predominantly coniferous	29
3.16	Predominantly broadleaved	30
3.17	Predominantly bamboos, palms, etc.	0
3.18	Mixed	8

Note: If the area of forest voluntarily excluded from wood supply, i.e. forest which is legally and economically "available for wood supply" but where the forest owner has decided not to harvest wood, can be quantified, please specify.

Check: Sum of (3.2+3.3+3.4+3.5) = (3.1) Forest, Total OK
Sum of (3.7+3.8+3.9+3.10) = (3.6) Forest available for wood supply OK
Sum of (3.12+3.13) = (3.11) Forest not available for wood supply OK
Sum of (3.15+3.16+3.17+3.18) = (3.14) Other wooded land OK

Data source and quality

Source: Forest management plans, inquiry, NFI

Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFR-A-2000 definitions?

Predominantly coniferous: Yes

Predominantly broadleaved: Yes

Predominantly bamboos, palms, etc.:

Mixed: Yes

If adjusted, description of adjustment process: Not attached

Specifications of known deviations from TBFR-A-2000 definitions: Not attached

Likely range: Taking account of errors due to measurement, sampling, and adjustment,

please indicate the range within which the true value is likely to be, for the following parameters:

Predominantly coniferous: from 313 to 354 thousand ha

Predominantly broadleaved: from 392 to 434 thousand ha

Predominantly bamboos, palms, etc.: from 0 to 0 thousand ha

Mixed: from 341 to 375 thousand ha

Comments: Parameter estimates are based on the data from the Forest management plans and National Forest Inventory ("NFI"-is based on 712 permanent sampling plots (double stage sampling with tracts))

Table 4
High forest and coppice

Purpose: The wood supply potential, the biodiversity and other factors are strongly affected by whether the forest is managed as high forest or as coppice.

Country: SLOVENIA

Reference period: 1996

Ref.		Area (1000 ha)
4.1	Forest available for wood supply	(=3.6) 1035
4.2	– High forest	925
4.3	– Coppice and coppice with standards	110
4.4	Forest not available for wood supply	(=3.11) 64
4.5	– High forest	54
4.6	– Coppice and coppice with standards	10

Check: (4.2) High forest + (4.3) Coppice and coppice with standards = (4.1) Forest available for wood supply

OK

(4.5) High forest + (4.6) Coppice and coppice with standards = (4.4) Forest not available for wood supply

Difference:

Data source and quality

Source: Forest management plans, inquiry: "NFI"

Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFR-A-2000 definitions?

High forest: Yes

Coppice and coppice with standards: Yes

If adjusted, description of adjustment process: No; attached

Specifications of known deviations from TBFR-A-2000 definitions: Not attached

Likely range: Taking account of errors due to measurement, sampling, and adjustment.

please indicate the range within which the true value is likely to be, for the following parameters:

High forest: from 87% to 971 thousand ha

Coppice and coppice with standards: from 87 to 129 thousand ha

Comments: Forest management plans are used for ref. 4.1 and 4.4 - 4.6. Data for ref. 4.2 and 4.3 are based on the "NFI".

Table 5
Ownership and management of forest

Purpose: To provide data on the distribution of forest by ownership categories and the extent of which it is under management as both these factors strongly influence silvicultural treatment, if any, and wood supply potential. They are a crucial element in policy formulation.

Country: SLOVENIA

Reference period: 1996

Ref.		Total area		<i>Of which:</i>
		(1000 ha)		Managed
5.1	Forest, total	(=3.1)	1099	1099
5.2	- In public ownership		330	330
5.3	- Owned by indigenous or tribal peoples		0	0
5.4	- In private ownership		769	769
5.5	<i>Of which</i> Forest available for wood supply	(=3.6)	1035	1035
5.6	- In public ownership		310	310
5.7	- State ownership		285	285
5.8	- Owned by other public institutions		25	25
5.9	- Owned by indigenous or tribal peoples		0	0
5.10	- In private ownership		725	725
5.11	- Owned by individuals		725	725
5.12	- Owned by forest industries		0	0
5.13	- Owned by other private institutions		0	0
5.14	Other wooded land		67	0
5.15	- In public ownership		17	0
5.16	- Owned by indigenous or tribal peoples		0	0
5.17	- In private ownership		50	0

Note: This table refers to ownership, which may differ from use, especially in the case of indigenous and tribal peoples. For forest use by indigenous and tribal peoples, see table 22.

Check: Sum of (5.2+5.3+5.4) = (5.1) Forest, total OK
Sum of (5.6+5.9+5.10) = (5.5) Forest available for wood supply OK
Sum of (5.7 and 5.8) = (5.6) In public ownership OK
Sum of (5.11+5.12+5.13) = (5.10) In private ownership OK
Sum of (5.15+5.16+5.17) = (5.14) Other wooded land OK

Data source and quality

Source: Forest management plans, "NFI"

Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFRA-2000 definitions?

In public ownership: Yes
Owned by indigenous or tribal peoples: Yes No
In private ownership: Yes

If adjusted, description of adjustment process: Not attached
Specifications of known deviations from TBFRA-2000 definitions: Not attached

Likely range: Taking account of errors due to measurement, sampling, and adjustment, please indicate the range within which the true value is likely to be, for the following parameters:

In public ownership: from 315 to 345 thousand ha
Owned by indigenous or tribal peoples: from to thousand ha
In private ownership: from 731 to 806 thousand ha

Comments: The process of denationalization is still in continuation. We expect, the private property will increase.

Table 6
Number and size of holdings of forest and other wooded land

Purpose: To provide information on the structure of holdings, which is useful for policy formulation relating to wood supply potential, nature conservation and the socio-economic functions of the forest.

Country: SLOVENIA

Reference period: 1996

Ref.		Area (1000 ha)		Number of holdings
		Forest and other wooded land	<i>of which:</i> Forest	Forest and other wooded land
6.1	In public ownership	347	330	253
6.2	- Less than 3 ha	0	0	0
6.3	- 3 to 5 ha	0	0	0
6.4	- 6 to 10 ha	0	0	0
6.5	- 11 to 20 ha	0.01	0.01	1
6.6	- 21 to 50 ha	0	0	0
6.7	- 51 to 100 ha	0.2	0.2	3
6.8	- 101 to 500 ha	15	15	59
6.9	- 501 to 10,000 ha	331.79	314.79	190
6.10	- 10,001 to 100,000 ha			0
6.11	- More than 100,000 ha			0
6.12	In private ownership	819	769	290000
6.13	- Less than 3 ha	..	231	232870
6.14	- 3 to 5 ha	..	107	24070
6.15	- 6 to 10 ha	..	171	20880
6.16	- 11 to 20 ha	..	153	8990
6.17	- 21 to 50 ha	..	86	2700
6.18	- 51 to 100 ha	..	31	490
6.19	- 101 to 500 ha	..	..	..
6.20	- 501 to 10,000 ha	..	..	..
6.21	- 10,001 to 100,000 ha	..	..	..
6.22	- More than 100,000 ha	..	..	..

Check: Sum of (6.2 to 6.11) - (6.1) In public ownership
Sum of (6.13 to 6.22) - (6.12) In private ownership

OK
#VREDN! #VREDN!

Comments: The structure of holdings is changing (due to the process of denationalization). Private property is growing, some private owners will in the future own more than 100 ha.

Table 7
Changes in area of forest and other wooded land over time by main categories

Purpose: To provide information on changes over time for a few key parameters. (Because of changes in definitions, it is not possible to compare data for the TBFRA-2000 with those of FRA-1990 (temperate zones).

Country: SLOVENIA

Previous reference period: 1986

Latest reference period: 1996

Ref.		Previous reference period	Latest reference period	Average annual change between reference periods
		(1000 ha)		
7.1	Forest	1077	(=1.5) 1099	2,2
7.2	– Forest available for wood supply	1013	(=3.6) 1035	2,2
7.3	– Forest not available for wood supply	64	(=4.4) 64	0
7.4	Other wooded land	67	67	0

Check: Previous reference period: (7.2) Forest available for wood supply + (7.3) Forest not available for wood supply = (7.1) Forest

OK

Latest reference period: (7.2) Forest available for wood supply + (7.3) Forest not available for wood supply = (7.1) Forest

OK 0

Comments: According to the data from the forest management plans and "NFI" in 1996.

Table 8
Protection status

Purpose: To provide information on how much forest and other wooded land is protected to conserve biological diversity and whether this area is increasing or not.

Country: SLOVENIA

Reference period: 1996

Ref.		Area (1000 ha)
8.1	Forest	<u>=(1.5)</u> 1099
8.2	– In IUCN categories I and II	22.4
8.3	– In IUCN categories III to VI	56.3
8.4	Other wooded land	<u>=(1.5)</u> 67
8.5	– In IUCN categories I and II	2
8.6	– In IUCN categories III to VI	3.4

Check: Sum of (8.2 + 8.3) = (8.1) Forest Difference: 1020.3
Sum of (8.5 + 8.6) = (8.4) Other wooded land Difference: 61.6

Please indicate trends over the last 10-20 years in the area of forest and other wooded land in the IUCN protection categories with quantitative information, if possible.

Data source and quality

Source: KRAIGHIER 1996, PAVLE 1997, SKOBERNE 1997, SOLAR 1997, ZORMAN 1998

Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFRA-2000 definitions?

Forest

In IUCN categories I and II: Yes

In IUCN categories III to VI: Yes

Other wooded land

In IUCN categories I and II: Yes No

In IUCN categories III to VI: Yes No

If adjusted, description of adjustment process: Attached

Specifications of known deviations from TBFRA-2000 definitions: Attached

Likely range: Taking account of errors due to measurement, sampling, and adjustment.

Please indicate the range within which the true value is likely to be, for the following parameters:

Forest

In IUCN categories I and II: from 22 to 23 thousand ha

In IUCN categories III to VI: from 56 to 58 thousand ha

Other wooded land

In IUCN categories I and II: from 2 to 4.5 thousand ha

In IUCN categories III to VI: from 3.4 to 5 thousand ha

IUCN categories (see attached "Terms and Definitions")

- I. Strict nature reserve/wilderness area
- II. National Park
- III. Natural monument
- IV. Habitat/species management area
- V. Protected landscape/seascape
- VI. Managed resource protection area

Comments: Please attached short descriptions on the one pages attached.

Table 8:

Adjustment and comments for 'FOREST':

IUCN I: not adjusted

IUCN II: adjusted

This category is found only in Triglavski narodni park (IUCN: II/V). Estimation for IUCN II was made by an expert, working at Triglavski narodni park.

IUCN III: not adjusted

IUCN IV and VI: not adjusted

IUCN V: adjusted

Estimation for one part of IUCN: V was prepared by an expert, working at Triglavski narodni park.

Comment: An area of 55.400 ha (IUCN: I/V) is not included results. There is no data about the classification of this area attainable at the moment.

Adjustment and comments for 'OTHER WOODED LAND':

The data is adjusted for both IUCN I-II and IUCN III-VI.

As there is impossible to get the data about other wooded land according to IUCN categories at the moment, the area is estimated through the percentage comparison of forest land and other wooded land.

Definitions:

A comparison of IUCN categories and protection categories in Slovenia:

State of protection:

- National park (IUCN: II/V)
- Regional park (IUCN: V)
- Landscape park (IUCN: V)
- Nature reserve (IUCN: I ali IV)
- Natural monument (IUCN: III)

<i>Area of protected land:</i>	<i>Number</i>
National park	1
Regional park	1
Landscape park	28
Nature reserve	46
Natural monument	592
Sum	668

Table 9
Tree species occurring on forest and other wooded land

Purpose: To provide an indication of how many species of trees occur on forest and other wooded land, and whether they are indigenous or introduced.

Country: SLOVENIA

Reference period: 1996

Please provide information on the tree species occurring on forest and other wooded land (scientific genus and species) on separate sheets under the following headings:

County/Region* (to be decided by countries):

Country:.....

Ref.		Species	Abundance**
9.1	Native (indigenous) tree species occurring on forest and other wooded land		
1	Common silver fir	Abies alba	common
2	Common larch	Larix decidua	common
3	Norway spruce	Picea abies	common
4	Scots pine	Pinus sylvestris	common
5	Austrian pine	Pinus nigra	common
6	Mountain pine	Pinus mugo	common
7	Arolla pine	Pinus cembra	endangered
8	Common yew	Taxus baccata	endangered
9	Common juniper	Juniperus communis	common
10	Prickly juniper	Juniperus oxycedrus	rare
11	Bay laurel	Laurus nobilis	at risk
12	Wild cherry	Prunus avium	common
13	Mahaleb cherry	Prunus mahaleb	common
14	Bird cherry	Prunus padus	common
15	Common crab apple	Malus sylvestris	at risk
16	Wild pear	Pyrus pyraster	at risk
17	Almond-leaved pear	Pyrus amygdaliformis	at risk
18	Rowan	Sorbus aucuparia	common
19	Whitebeam	Sorbus aria	common
20	Wild service tree	Sorbus torminalis	at risk
21	Tree service tree	Sorbus domestica	at risk
22	Midland Hawthorn	Crataegus laevigata	common
23	Common Hawthorn	Crataegus monogyna	common
24	Judas tree	Cercis siliquastrum	at risk
25	Strawberry tree	Arbutus unedo	at risk
26	Common laburnum	Laburnum anagyroides	common
27	Scotch laburnum	Laburnum alpinum	common
28	Alschinger laburnum	Laburnum alschingeri	rare
29	Small-leaved lime	Tilia cordata	common
30	Broad-leaved lime	Tilia platyphyllos	common
31	Terebinth pistacio	Pistacia terebinthus	at risk
32	Sycamore	Acer pseudoplatanus	common
33	Norway maple	Acer platanoides	rare
34	Field maple	Acer campestre	common
35	Montpelier maple	Acer monspessulanum	rare
36	Coarse-leaved maple	Acer obtusatum	rare
37	Tatar maple	Acer tataricum	endangered

38	Common Holly	<i>Ilex aquifolium</i>	at risk
39	Common alder	<i>Alnus glutinosa</i>	common
40	Grey alder	<i>Alnus incana</i>	common
41	Silver birch	<i>Betula pendula</i>	common
42	Downy birch	<i>Betula pubescens</i>	rare
43	Common hornbeam	<i>Carpinus betulus</i>	common
44	Oriental hornbeam	<i>Carpinus orientalis</i>	common
45	European hop hornbeam	<i>Ostrya carpinifolia</i>	common
46	Sweet chestnut	<i>Castanea sativa</i>	at risk
47	Common beech	<i>Fagus sylvatica</i>	common
48	Common oak	<i>Quercus robur</i>	common
49	Sessile oak	<i>Quercus petraea</i>	common
50	Turkey oak	<i>Quercus cerris</i>	common
51	Downy oak	<i>Quercus pubescens</i>	common
52	False-cork oak	<i>Quercus crenata</i>	endangered
53	Holm oak	<i>Quercus ilex</i>	at risk
54	Common walnut	<i>Juglans regia</i>	at risk
55	Aspen	<i>Populus tremula</i>	common
56	White poplar	<i>Populus alba</i>	rare
57	Black poplar	<i>Populus nigra</i>	rare
58	White willow	<i>Salix alba</i>	common
59	Goat willow	<i>Salix caprea</i>	common
60	Violet willow	<i>Salix daphnoides</i>	rare
61	Hoary willow	<i>Salix elaeagnos</i>	common
62	Crack willow	<i>Salix fragilis</i>	rare
63	Almond-leaved willow	<i>Salix triandra</i>	at risk
64	Common osier	<i>Salix viminalis</i>	rare
65	Common fig	<i>Ficus carica</i>	rare
66	Southern nettle-tree	<i>Celtis australis</i>	at risk
67	Wych elm	<i>Ulmus glabra</i>	at risk
68	Smooth-leaved elm	<i>Ulmus minor</i>	at risk
69	European white elm	<i>Ulmus laevis</i>	at risk
70	Common ash	<i>Fraxinus excelsior</i>	common
71	Manna ash	<i>Fraxinus ornus</i>	common
72	Narrow-leaved ash	<i>Fraxinus angustifolia</i>	rare
73	Phillyrea	<i>Phillyrea latifolia</i>	endangered
9.2		Introduced tree species on forest and other wooded	
1	Douglas fir	<i>Pseudotsuga menziesii</i>	rare
2	Japanese larch	<i>Larix kaempferi</i>	rare
3	Greek fir	<i>Abies cephalonica</i>	rare
4	Giant fir	<i>Abies grandis</i>	rare
5	Deodar	<i>Cedrus deodara</i>	rare
6	Weymouth pine	<i>Pinus strobus</i>	rare
7	Aleppo pine	<i>Pinus halepensis</i>	rare
8	Himalayan pine	<i>Pinus wallichiana</i>	rare
9	Jeffrey pine	<i>Pinus jeffreyi</i>	rare
10	Mountain pine ?	<i>Pinus uncinata</i>	rare
11	Sitka spruce	<i>Picea sitchensis</i>	rare
12	Oriental spruce	<i>Picea orientalis</i>	rare
13	Colorado spruce	<i>Picea pungens</i>	rare
14	California redwood	<i>Sequoia sempervirens</i>	rare
15	Eastern hemlock	<i>Tsuga canadensis</i>	rare
16	Lawson cypress	<i>Chamaecyparis lawsoniana</i>	rare
17	Red oak	<i>Quercus rubra</i>	rare

18	Black locust	Robinia pseudacacia	common
19	Black walnut	Juglans nigra	rare
20	Populus x canadensis	Populus x canadensis	rare

Note: * Larger countries may wish to fill in this table separately for different geographic regions.

** e.g. "common", "rare", "at risk", "endangered"

May any introduced species be considered as "domesticated"?	Yes
If yes, please list them with the indication of the date of their introduction in the region (country):	
Robinia pseudacacia	
It occurs as a main tree species in some forest stands in south-western part of Slovenia. Robinia pseudacacia is widely spread in our country more than one century.	

Comments: Tree species occurring in forests are assessed by specialists for tree species.

Table 10
Forest-occurring species at risk or endangered

Purpose: To provide information on the number of forest-occurring species (plants and animals) that are rare or endangered, thereby giving an indication of the state of biological diversity in forest and other wooded land.

Country: SLOVENIA

Reference period: 1996

Ref.		All species in country				Forest occurring species			
		Total species	<i>Of which:</i> endangered	Endemic species	<i>Of which:</i> endangered	Total species	<i>Of which:</i> endangered	Endemic species	<i>Of which:</i> endangered
10.1	Trees (coniferous and broadleaved species)	73	5	0	0	..	..	..	..
10.2	Other vascular plants (flowers)	3027	309	66	12	..	..	..	..
10.3	Ferns	75	16	0	0	..	..	..	..
10.4	Mosses	755	261	0	0	..	..	..	..
10.5	Lichens	600	88	0	0	..	..	..	..
10.6	Mammals	88	45	0	0	56	26	0	0
10.7	Birds	207 (361*)	121	0	0	95	46	0	0
10.8	Other vertebrates (fish, amphibians, reptiles, snakes)	144	107	2	2	27	21	0	0
10.9	Butterflies	1402	1170	13	12	..	..	..	..

Problematic introduced species: (Please note any introduced species which create problems for particular forest ecosystems, and indicate the type of problem posed: e.g. invasive alien species preventing the other tree species from regenerating, or an introduced exotic deer species that is out-competing indigenous species and thus causing an imbalance in the forest ecosystem).

Introduced species of mammals game Fallow deer (*Cervus dama* L.) and Mouflon (*Ovis ammon* L.) causing damage on regenerating of indigenous tree species of forest ecosystems. Other two introduced species of mammals are the Alpine stinbock (*Capra ibex* L.) and the Alpine marmot (*Marmota marmota* L.), which considered as autochthonous species in pleistocen, and not causing damage in forest ecosystems.

Endangerment status categories: Please use the attached sheet to calculate how many species in your country are endangered. Include all species which would be ranked in the pre-1994 IUCN ranks "Ex/E", "E", "V", "R" and "I", or in the new ranks "EW", "CR", "EN" and "VU" (see annex to the table). The IUCN/WCMC publications "Threatened plants of the world" may be helpful, but many countries have national Red Lists which would be more appropriate.

Comments: The group "Mosses" also includes Liverworts (Hepaticae).

The total number of mosses (Musci) is 598 (of which 212 are endangered).

The number of Liverworts (Hepaticae) is 157 (of which 49 are endangered).

The total number of forest occurring species (Pteridophytes and Spermatophytes) is 950 (of which is 47 endangered).

There are no other relevant databases of other groups of in forests occurring plant species.

Comments (fauna):

Mammals:

The line in the table captures all mammalian species (88) of wild fauna in Slovenia.

From them are 69 species autochthonous in the land and four (4) species of whale in the sea (which are observed very rare).

Further 6 species are extinct (Ex); one of them in the sea (*Monachus monachus*: HERMANN, 1779), one of them was successfully reconolized (*Lynx lynx* L.) in 1973 and is not endangered.

Next four (4) game species were colonized and still four (4) species were colonized with men activities.

One (1) species colonized with natural way (*Canis aureus* L.) - and is not included endangered.

All 4 species of whale we included so as endangered.

Autochtonous in the land		69	
Autochtonous in the sea		4	(whale)
Extinct		5	
Ex -recolonized		1	(<i>Lynx lynx</i> L.)
Colonized game species		4	
Colonized - men activities		4	
Colonized-natural way		1	(<i>Canis aureus</i> L.)
Total		88	

Birds

Of the 361* bird species, known so far occur in Slovenia, 169 are traditional breeders. In all, there 207 species of breeders, including irregular or occasional breeders (GREGORI, J., MATVEJEV, S., 1992).

Other vertebrates:

In the tabel of forest occurring species the pisces and lamprey species are not considered.

Reptilia: So far, 21 spec. of reptiles have been presented, but at least 26 sp. are probably to be found (24 sp. are endang. (MRŠIČ 1992)).

Amphibia: Twenty names (Amphibia) have been included in the Red List and twenty species are endangered (SKET 1992).

Pisces: In fresh and brackish waters of Slovenia, 94 species of pisces are to be found (of which 59 are endangered) (POVŽ 1992)

Cyclostomata: In fresh waters of Slovenia, 4 species of lamprey are to be found (POVŽ 1992).

Butterflies:

There are no other relevant databases of forest occurring Butterflies species.

Table 11
Regeneration and extension of forest

Purpose: To provide information on the extent of regeneration and extension of forest over a recent 10-year period by natural or artificial means, in order to assess management methods and intensity and changes in genetic composition.

Country: Slovenia

Ten-year period: 1981 to 1991

Ref.		Annual average area over 10-year period	<i>Of which: With introduced tree species</i>
		(1000 ha)	
11.1	A. <u>Regeneration of forest (reforestation), total</u>	7.5	0
11.2	– Natural regeneration	5.8	0
11.3	– Natural regeneration enhanced by planting	0.2	0
11.4	– Coppice sprouting	1	0
11.5	– Planting or seeding	0.5	0
11.6	B. <u>Extension of forest, including afforestation and reforestation of other wooded land, total</u>	3.6	0
11.7	– Natural colonization of non-forest land to forest	0.3	0
11.8	– Natural conversion of other wooded land to forest	3.3	0
11.9	– Planting or seeding of non-forest land	0	0
11.10	– Planting or seeding of other wooded land	0	0
11.11	C. <u>Natural colonization of non-forest land to other wooded land</u>	0.5	0

Check: Sum of (11.2 + 11.3 + 11.4 + 11.5) = (11.1) Regeneration of forest (reforestation), total OK
Sum of (11.7 + 11.8 + 11.9 + 11.10) = (11.6) Extension of forest, including afforestation and reforestation of other wooded land, total Difference: 4.44089E-16

Data source and quality

Source: Slovenia Forest Service

Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFR.A-2000 definitions?

Regeneration of forest (reforestation), total Yes

Natural regeneration Yes

Natural regeneration enhanced by planting Yes

Coppice sprouting Yes

Planting or seeding Yes

If adjusted, description of adjustment process: Not attached

Specifications of known deviations from TBFR.A-2000 definitions: Not attached

Likely range: Taking account of errors due to measurement, sampling, and adjustment,

please indicate the range within which the true value is likely to be, for the following parameters:

Regeneration of forest (reforestation), total: from 6.4 to 8.6 thousand ha

Natural regeneration: from 4.7 to 6.9 thousand ha

Natural regeneration enhanced by planting: from 0.2 to 0.2 thousand ha

Coppice sprouting: from 0.8 to 1.2 thousand ha

Planting or seeding: from 0.5 to 0.5 thousand ha

Comments: Regeneration of forests by planting or seeding includes 500 ha (only 10 ha by introduced tree species - *Quercus rubra*).
Planting or seeding of non-forest land and of other wooded land is negligible.

Table 12
Species diversity and origin of planting material used in the forest

Purpose: To provide information on trends in species diversity and origin of planting material used in managed forests.

Country: SLOVENIA

Ten-year period: 1986 to 1996

Ref.		Total, <i>of which</i>	Known local provenance	Known non-local provenance	Unknown provenance
		(ha/year)			
	Indigenous species (specify) ¹				
12.1	<i>Picea abies</i> (Norway spruce)	3300	3300	0	0
12.2	<i>Fagus sylvatica</i> (common beech)	920	416	337	167
12.3	<i>Fraxinus excelsior</i> (common ash)	710	334	230	146
12.4	<i>Quercus robur</i> (common oak)	600	250	225	125
12.5	<i>Acer pseudoplatanus</i> (sycamore)	510	249	166	95
12.6	<i>Alnus glutinosa</i> (common alder)	260	231	21	8
12.7	<i>Larix decidua</i> var. <i>alpica</i> (common larch var.)	240	166	74	0
12.8	<i>Quercus petraea</i> (sessile oak)	230	106	81	43
12.9	<i>Larix decidua</i> var. <i>sudetica</i> (common larch va)	80	0	0	80
12.10	<i>Abies alba</i> (common silver fir)	70	50	20	0
12.11	<i>Pinus sylvestris</i> (Scots pine)	70	9	61	0
12.12	<i>Pinus nigra</i> (Austrian pine)	70	0	0	70
12.13	<i>Prunus avium</i> (wild cherry)	70	8	41	21
12.14	<i>Tilia cordata</i> , <i>Tilia platyphyllos</i> (small-leave	30	0	0	30
12.15	<i>Sorbus aucuparia</i> (rowan)	10	0	0	10
	Introduced species: (specify) ¹				
12.16	<i>Quercus rubra</i> (Northern red oak)	70		0	70
12.17	<i>Populus</i> ssp. (Poplars, hybrids)	20		0	20
12.18	<i>Pseudotsuga menziesii</i> (Douglas fir)	10		0	10

Note: ¹ Please provide local and scientific names.

(Source: Slovenia Forest Service)

Comments: Last four years are representative index of species and quantity of reproductive material.

All data for ten - year period were calculated from annual average over these years.

Table 13

Age-class distribution of high forest available for wood supply

Purpose: To provide information on the distribution by age-class and species groups of high forest available for wood supply as an indication of the extent and timing of future sustainable wood supply and of the structure of the forest.

Country: SLOVENIA

Reference period: 1996

Ref.		High forest available for wood supply (1000 ha)				Total
		Predominantly coniferous	Predominantly broadleaved	Predominantly bamboos, palms, etc.	Mixed	
13.1	Total	277	348	0	300	925
13.2	– Uneven-aged	134	184	0	212	530
13.3	– Even-aged	143	164	0	88	395
13.4	– Under regeneration	1	3	0	2	9
13.5	– 10 years or less	1	6	0	3	10
13.6	– 11 to 20 years	2	9	0	4	12
13.7	– 21 to 40 years	9	5	0	6	18
13.8	– 41 to 60 years	17	16	0	9	43
13.9	– 61 to 80 years	22	47	0	20	90
13.10	– 81 to 100 years	44	43	0	11	100
13.11	– 101 to 120 years	26	17	0	18	61
13.12	– 121 to 140 years	13	12	0	8	33
13.13	– Over 140 years	8	5	0	7	19
13.14	– Unknown age	0	0	0	0	0

Check: Sum of (13.4 to 13.13) = (13.3) Even-aged OK
 (13.2) Uneven-aged + (13.3) Even-aged + (13.14) Unknown age = (13.1) Total OK

Note: The option to supply data on individual "commercial species" or species groups separately is open and would be welcomed.

Comments: Expert assessment based on the data from the forest management plans and "NFI" 1996.

Table 14
Total woody biomass and the volume of growing stock

Purpose: To provide information on the mass and volume of tree and other woody biomass, thereby indicating the role played by forest resources in carbon storage; and the volume of growing stock as an indicator of the forest potential.

Country: SLOVENIA

Reference period: 1996

Ref.		Standing volume		Woody biomass
		Growing stock	Dead trees	
		(1000 m3 overbark)		(1000 m.t. oven-dry)
		(A)	(B)	(C)
	<u>Above-stump volume and biomass</u>			
14.1	- Trees on forest, total	310577	5904.1	195340
14.2	- Coniferous	154667		79343
14.3	- Broadleaved	155910		115997
14.4	- Other (bamboos, palms, etc.)	0		0
14.5	- Trees on forest available for wood supply	292491	5849.8	1336728
14.6	- Coniferous	145660		
14.7	- Broadleaved	146831		
14.8	- Other (bamboos, palms, etc.)	0		
14.9	- Trees on forest not available for wood supply	10852	54.3	7385
14.10	- Other trees (on other wooded land and trees outside the forest)	7035		5234
14.11	- Other woody biomass (shrubs and bushes) on forest and other wooded land			6380
14.12	<u>Total above-stump volume and woody biomass</u>	317612	5949.1	206954
	<u>Other woody biomass</u>			
14.13	Stumps and roots			28598

Check:	Sum of (A:14.2 to A:14.4) = (A:14.1) Growing stock, Trees on forest, total	OK
	Sum of (A:14.6 to A:14.8) = (A:14.5) Growing stock, Trees on forest available for wood supply	OK
	Sum of (C:14.2 to C:14.4) = (C:14.1) Woody biomass, Trees on forest, total	OK
	Sum of (C:14.1+C:14.10+C:14.11) = (C:14.12) Woody biomass, Total above-stump woody biomass	OK
	Sum of (A:14.1+A:14.10) = (A:14.12) Growing stock, Total above-stump volume	OK

Data source and quality				
Source:	Forest management plan, "NFI"			
Adjustment:	Were source data for the following parameters adjusted to bring them into conformity with TBFRA-2000 definitions?			
<i>Growing stock of trees on forest, total:</i>	Yes			
<i>Growing stock of trees on forest available for wood supply:</i>	Yes			
<i>Woody biomass on forest and other wooded land:</i>	Yes			
If adjusted, description of adjustment process:	Not attached			
Specifications of known deviations from TBFRA-2000 definitions	Not attached			
Likely range:	Taking account of errors due to measurement, sampling, and adjustment, please indicate the range within which the true value is likely to be, for the following parameters.			
<i>Growing stock of trees, total:</i>	from	295.669	to	325.485 thousand m3 o.b.
<i>Growing stock of trees on forest available for wood supply:</i>	from	278.451	to	306.531 thousand m3 o.b.
<i>Woody biomass, total above-stump:</i>	from	191.432	to	222.476 thousand m.t. oven-

Comments: The volume of dead trees is estimated to: ref. B:14,5 - 2 percent of ref. A:14,5 and ref. B:14,9 - 5 percent of ref. A:14,9.

Ref. B:14,12 is an expert estimate based on the ref. B 14,5 and B 14,9. The methodology used for woody biomass is the methodology of secretariat estimation (1985)

The standing volume and increment do not include trees below dbh<10 cm. However the regression adjustment (least square method) performed for dbh (classes 0-10; 10.1-20; ... over 110 cm) and corresponding volumes showed, that the maximum of 1.5% of the volume can be expected in the class of 0-10 cm, which is within the sampling error for the standing volume ($\pm 3.8\%$).

Comments: The volume of dead trees is estimated to: ref. B:14,5 - 2 percent of ref. A:14,5 and ref. B:14,9 - 5 percent of ref. A:14,9.
Ref. B:14,12 is an expert estimate based on the ref. B:14,5 and B:14,9. The methodology used for woody biomass is the methodology of secretariat estimation (1985)

The standing volume and increment do not include trees below dbh < 10 cm. However the regression adjustment (least square method) performed for dbh (classes 0-10; 10.1-20; over 110 cm) and corresponding volumes showed, that the maximum of 1.5% of the volume can be expected in the class of 0-10 cm, which is within the sampling error for the standing volume ($\pm 3.8\%$).

Table 15
Increment

Purpose: To provide information on the increment, and natural losses as essential elements in the forest balance.

Country: SLOVENIA

Reference period: 1996

Ref.		Gross annual increment	Natural losses	Net annual increment
		(1000 m3 o.b.)		
		(A)	(B)	(C)
15.1	On forest, total	7064	725	6339
15.2	– Coniferous	3335	345	2990
15.3	– Broadleaved	3729	380	3349
15.4	– Other	0	0	0
15.5	– On forest available for wood supply	6852	725	6127
15.6	– Coniferous	3244	345	2899
15.7	– Broadleaved	3608	380	3228
15.8	– Other	0	0	0
15.9	– On forest not available for wood supply	212		212
15.10	On other wooded land	46		46
15.11	On trees outside the forest	10		10
15.12	TOTAL INCREMENT	7120		6395

Check: (B) Natural losses + (C) Net annual increment – (A) Gross annual increment	OK
Sum of (A:15.2 + A:15.3 + A:15.4) – (A:15.1) GAI on forest, total	OK
Sum of (B:15.2 + B:15.3 + B:15.4) – (B:15.1) Natural losses on forest, total	OK
Sum of (C:15.2 + C:15.3 + C:15.4) – (C:15.1) NAI on forest, total	OK
Sum of (A:15.5 + A:15.9 + A:15.10 + A:15.11) – (A:15.12) Total gross annual increment	OK
Sum of (C:15.5 + C:15.9 + C:15.10 + C:15.11) – (C:15.12) Total net annual increment	OK
Sum of (A:15.5 + A:15.9) – (A:15.1) GAI on forest, total	OK
Sum of (C:15.5 + C:15.9) – (C:15.1) NAI on forest, total	OK
Sum of (A:15.6 + A:15.7 + A:15.8) – (A:15.5) GAI on forest available for wood supply	OK
Sum of (B:15.6 + B:15.7 + B:15.8) – (B:15.5) Natural losses on forest available for wood supply	OK
Sum of (C:15.6 + C:15.7 + C:15.8) – (C:15.5) NAI on forest available for wood supply	OK

Data source and quality

Source: "NFI"

Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFRA-2000 definitions?

Net annual increment on forest available for wood supply:	Yes
Natural losses on forest available for wood supply:	Yes
If adjusted, description of adjustment process:	Not attached
Specifications of known deviations from TBFRA-2000 definitions:	Not attached

Likely range: Taking account of errors due to measurement, sampling, and adjustment,

please indicate the range within which the true value is likely to be, for the following parameters:

Net annual increment on forest available for wood supply:	from	5833	to	6421	thousand m3 o.b.
Natural losses on forest available for wood's apply:	from	690	to	760	thousand m3 o.b.

Comments: Gross annual increment is based on the data of the "NFI" 1996. Natural losses are estimated to 10 percent of gross annual increment (expert assessment).

Table 16
Fellings and removals

Purpose: To provide information on the volume of wood being cut and harvested annually as essential elements in the forest balance.

Country: SLOVENIA

Reference period: 1996

Ref.		Annual fellings		Annual removals	
		Total	<i>Of which: Fellings of natural losses *</i>	Overbark	Underbark
		(1000 m3 o.b.)		(1000 m3 u.b.)	
		(A)	(B)	(C)	(D)
16.1	On forest, total	2300	1100	1100	1000
16.2	- Coniferous	1500	900	900	800
16.3	- Broadleaved	800	200	200	200
16.4	-- Other	0	0	0	0
16.5	-- On forest available for wood supply	2300	1100	1100	1000
16.6	- Coniferous	1500	900	900	800
16.7	- For commercial use				
16.8	- other				
16.9	Broadleaved	800	200	200	200
16.10	- For commercial use				
16.11	- other				
16.12	Other	0	0	0	0
16.13	- For commercial use	0			
16.14	- other	0			
16.15	On forest not available for wood supply	0			0
16.16	On other wooded land	0			0
16.17	On trees outside forest	0			0
16.18	Total Fellings and removals	2300			1000

Note: * e.g. trees damaged by insects, pollution, fires, storms, avalanches.

Check:	Sum of (A:16.2+A:16.3+A:16.4) = (A:16.1) Forest, total, Annual fellings	OK
	Sum of (D:16.2+D:16.3+D:16.4) = (D:16.1) Forest, total, Annual removals, underbark	OK
	Sum of (A:16.5+A:16.15+A:16.16+A:16.17) = (A:16.18) Total, Annual fellings	OK
	Sum of (D:16.5+D:16.15+D:16.16+D:16.17) = (D:16.18) Total, Annual removals, underbark	OK

Data source and quality

Source: Forest management plan, yearbook

Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFRA-2000 definitions?

Annual fellings Yes

Annual removals: Yes

If adjusted, description of adjustment process: Not attached

Specifications of known deviations from TBFRA-2000 definitions: Not attached

Likely range: Taking account of errors due to measurement, sampling, and adjustment.

please indicate the range within which the true value is likely to be, for the following parameters:

Annual fellings, total: from 2300 to 2800 1000 m³ o.b.

Annual removals, total: from 1000 to 1350 1000 m³ u.b.

Comments: Expert assessment is based on the data from the forest management plans.

Table 17
Change in growing stock on forest available for wood supply

Purpose: To provide information on changes in growing stock, which give important indications of the extent to which the wood potential is being used.

Country: SLOVENIA

Reference period "1": 1986

Reference period "2": 1996

Ref.		Reference period "1"	Reference period "2"	Average annual change
		(1000 m ³ over bark)		(1000 m ³)
17.1	Growing stock on "Forest", total	208500	310577	10207,7
	<i>of which:</i>			
17.2	Growing stock on "Forest available for wood supply"	202200	292491	9029,1
	<i>of which:</i>			
17.3	– Coniferous	105100	145660	4056,6
17.4	– Broadleaved	97100	146831	4973,1
17.5	– Other (bamboos, etc.)	0	0	0

Check: Sum of (17.3+17.4+17.5) = (17.2) Reference period "1" OK
Sum of (17.3+17.4+17.5) = (17.2) Reference period "2" OK
Sum of (17.3+17.4+17.5) = (17.2) Average annual change OK

Note: The reference periods should correspond to those in tables 7 and 14.

Comments: A comparison between growing stocks of two reference periods is practically impossible due to differences in data collection method.

Methodology: -1986: non sampling method (combination of sampling and visual assessments)
-1996: sampling methodology (double stage sampling in tracts)

Table 18
Damage to forest and other wooded land

Purpose: To assess the condition of the forest and other wooded land, and the extent to which the forest is under threat, to provide information on damage to the forest from different causes.

Country: SLOVENIA

Reference period: 1996

Ref.		1996	Year in most recent 10-year period in which the heaviest damage occurred	
		Annual average (1000 ha)	Year	Extent of damage (1000 ha)
18.1	Total area of forest and other wooded land with damage by known causes	36,6		
18.2	-- Primarily damaged by insects and disease	0,4	..	..
18.3	-- Primarily damaged by wildlife and grazing	0,9	..	..
18.4	- Primarily damaged by fire	0,3	..	..
18.5	- Primarily damaged from known local pollution sources	0	..	..
18.6	- Primarily damaged by storm, wind, snow or other identifiable abiotic factors	3,5	..	..
18.7	Total area of forest and other wooded land with damage from unidentified causes	0,3	..	..

Check: Sum of (18.2 + 18.3 + 18.4 + 18.5 + 18.6) = (18.1)
Total area of forest and other wooded land with damage attributable to known causes.

OK

Note: Where there have been major individual episodes (e.g. a large wind blow, snow storm, etc.) Please provide information on date, extent, etc.

Other comments: The only available data for the 10-year period are from 1990 and 1996 (expressed in ha).

Table 19
Forest fire

Purpose: To provide information about the extent of fire damage and the average fire size, as well as about trends over time.

Country: SLOVENIA

Ref.	Year	Total number of fires on forest and other wooded land	Area burned		
			Total	Area of forest burned	Area of other wooded land burned
			(1000 ha)		
19.1	1986	..	..	..	..
19.2	1987	..	..	..	..
19.3	1988	42	0.2	0.2	0
19.4	1989	11	0.1	0.1	0
19.5	1990	58	0.7	0.6	0,1
19.6	1991	30	0,7	0.6	0,1
19.7	1992	40	0.4	0.3	0,1
19.8	1993	108	1.7	1.3	0,4
19.9	1994	66	0.9	0.9	0
19.10	1995	25	0.2	0.1	0,1
19.11	1996	50	0,3	0.2	0
19.12	1997	..	..	..	..

Note: This table need be completed only by those countries which do not report annual data on fires in the UN-ECE/FAO/Commission of European Communities questionnaire on forest fires (see Timber Bulletin, vol. ECE/TIM/BULL/48/4, (1995), Vol. XLVIII.

Comments: For years 1986, 1987 and 1997: data expressed in ha are not available.

Table 20
Forest condition

Purpose: To provide information on defoliation as an indicator of the extent of tree damage from one or a combination of causes, including air pollution.

Country: SLOVENIA

Ref.	Defoliation classes:	All species		Coniferous		Broadleaved	
		0 and 1	2, 3 and 4	0 and 1	2, 3 and 4	0 and 1	2, 3 and 4
		(Percentage of sample trees)					
		(A)	(B)	(C)	(D)	(E)	(F)
20.1	1986	..	..	..	..	..	..
20.2	1987	79,1	20,9	65,7	34,3	90	10
20.3	1988	..	..	..	..	..	..
20.4	1989	..	..	..	..	..	..
20.5	1990	..	..	..	..	..	..
20.6	1991	84,4	15,6	75,7	24,3	90,2	9,8
20.7	1992	..	..	..	..	..	..
20.8	1993	81,1	18,9	72,9	27,1	88,3	11,7
20.9	1994	84,3	15,7	80,6	19,4	87,4	12,6
20.10	1995	76,5	23,5	70,8	29,2	80,7	19,3
20.11	1996	80,8	19,2	73,8	26,2	85,3	14,7
20.12	1997	74	26	67,5	32,5	78	22

Check: A + B = 100
C + D = 100
E + F = 100

Countries not able to provide information on forest condition in this form, i.e. countries not participating in the annual ICP surveys, are invited to describe the situation, provide relevant documentation and contact the secretariat.

Other comments: Data based on the "NFI" on the 4x4 km net.

Defoliation classes (UN/ECE and EU classification)

Class	Needle/leaf loss	Degree of defoliation
0	Up to 10%	none
1	10-25%	slight (warning stage)
2	25-60%	moderate
3	60% - 100%	severe
4	100%	dead

Table 22
Indigenous and tribal peoples

Purpose: In addition to ownership by indigenous or tribal peoples (table 5), it is useful to have information about the area of forest and other wooded land used by these peoples and the way they use it.

Country: SLOVENIA

Reference period: 1996

22.1 It is understood that not all responding countries have indigenous or tribal peoples. For those that do, please give an actual figure or estimate of the population number meeting the definition used in this enquiry:

22.2 Please give an estimate of the area of forest and other wooded land used by indigenous or tribal peoples for the collection and harvesting of wood and non-wood goods and the provision of services:,000 ha

22.3 If the area used is either more or less than the combined figures in table 5 for forest owned by indigenous or tribal peoples, please give an explanation for the difference:

22.4 What are the main uses of forest and other wooded land by indigenous or tribal peoples? If actual figures or estimates of the quantities or values involved, please provide them:

Other comments:.....

Table 21
Protection

Purpose: To provide information on the situation and trends in management of forest and other wooded land for soil protection.

Country: SLOVENIA

Previous reference period: 1986

Latest reference period: 1996

Ref.		Previous reference period	Latest reference period	Change
		(1000 ha)		
21.1	Area where forests and other wooded land are managed primarily for soil protection	68,6	68,3	-0,3
21.2	- Forest	60,6	59,3	-1,3
21.3	- Other wooded land	8	9	1

Check: (21.2) Forest + (21.3) Other wooded land = (21.1) Area where FOWL are managed primarily for soil protection:

Previous reference period

OK

Latest reference period

OK

Change

Difference: 5.55112E-17

Comments: Land covered with *Pinus mugo* is classified as other wooded land.

Table 23

Access to, and use of, forest and other wooded land by public

Purpose: With increasing demand for non-wood goods and services, including recreation, it is important to know how much of the forest and other wooded land is legally accessible to the public for these purposes, and the trends in access and uses.

Country: SLOVENIA

Reference period: 1996

1. Please give an estimate of the area of forest and other wooded land to which the general public is legally NOT allowed access:

23.1	– Publicly owned forest and other wooded land	5,000ha
23.2	– Forest and other wooded land owned by indigenous or tribal peoples	0,000 ha
23.3	– Privately owned forest and other wooded land	0,000 ha

2. Has there been a long-term change in the area to which the public has legally had access:

23.4	– Yes	
23.5	– Publicly owned forest and other wooded land	INCREASING
23.6	– Forest and other wooded land owned by indigenous or tribal peoples	
23.7	– Privately owned forest and other wooded land	STABLE

** Delete whichever are not applicable*

3. What are the reasons for not allowing public access, and for the long-term change (if any) in the situation?:

There are three reasons: 1.) Military reasons: access is not allowed has been reduced from 18.800 to 2.300 ha
 2.) Water purping areas: 700 ha EST - no change
 3.) Game fence: 2000 ha - no change

4. For a recent year or period, please describe pattern of visitor use of different ownership categories of forest and provide any quantitative data you may have, e.g. give actual figures or estimates of areas of forests with high visitor intensity or the number of visitors/days by the public to forest and other wooded land (year/period:.....):

– State owned	9 million hours
– Other publicly-owned	1 million hours
– Owned by indigenous or tribal peoples	..
– Owned by individuals	10 million hours
– Owned by forest industries	..
– Owned by other private institutions	..

5. Please describe if appropriate, regimes of access to forests for non-wood goods (e.g. mushroom gathering/services/recreation/hunting) when they differ from the general access regime.

Mushroom gathering is limited to 2 kg per person daily, in protected areas not allowed

Hunting is strictly regulated (based on plans) and carried

Where private forests are grown predominantly for non-wood goods, local authorities may restrict gathering in these forests.

Table 24

Goods (wood and non-wood) and selected services provided by forest and other wooded land

Purpose: To provide qualitative and, where available, quantitative information on the importance of the role of forest and other wooded land in providing wood and non-wood goods and certain social, cultural and environmental services.

Country: SLOVENIA

Reference period: 1996

Please provide on separate pages **short descriptions** (not more than 10 lines) of the most important types of goods and services provided by forest and other wooded land, whether demand for them is increasing, stable or decreasing; likewise their supply potential; and so on, under each of the following headings:

Goods (products)

- 24.1 Wood
- 24.2 Products for human consumption: food, beverages, medicinal plants and extracts (e.g. fruits, berries, nuts, honey, game meats, mushrooms, etc.)
- 24.3 Fodder and forage (grazing, range)
- 24.4 Other non-wood goods (products) (e.g. cork, resin, tannins, industrial extracts, wool and skins, hunting trophies, Christmas trees, decorative foliage, mosses and ferns, essential

Services

- 24.5 Protection (against soil erosion by air or water, avalanches, mud and rock slides, flooding, air pollution, noise, etc.)
- 24.6 Social and economic values (e.g. hunting and fishing, other leisure activities, including recreation, sport and tourism)
- 24.7 Aesthetic, cultural, historical, spiritual and scientific values (including landscape and

Other comments: Please attached short descriptions on the two pages attached.

Table 24

Short descriptions of goods (wood and non-wood) and selected services provided by forest and other wooded land

Slovenia, 1996

Goods (products)

24.1 Wood

Wood supply from Slovenian forests has decreased in nineties from 3.5 million m³ to 2.3 million m³. In relation to the allowable cut determined in forest management plans that are made for all Slovenian forests, regardless of ownership, the actual cut attains only 80%, in relation to the increment, however, only 35%. The level of cutting is especially low in forests where there are small holdings since the potential income from the forest represents a very small proportion of the total income of the owner. Another characteristic is that the decrease is greater for the small diameter wood since costs of extraction in many cases (thinnings) overwhelm the market prices for the pulp- and fire-wood.

24.2 Products for human consumption: food, beverages, medicinal plants and extracts (e.g. fruits, berries, nuts, honey, game meats, mushrooms, etc.)

There have traditionally been many products for human consumption deriving from the forest. The number of species used for these purposes has decreased, but there is still a number of species that are used quite frequently, mostly in combination with forest recreation. This is the reason why we even notice an increase of gathering of such products around urban areas. Some of the products, like mushrooms, berries, chestnuts, honey, propolis are of considerable economic importance for local people in the countryside.

24.3 Fodder and forage (grazing, range)

Usage of forests for grazing is decreasing and is allowed only in limited areas where it cannot harm forest ecosystems and their functions to a greater extent. It is tolerated in forests around traditional mountain pastures with stable soil conditions. Forest grazing is of very small economic importance.

24.4 Other non-wood goods (products) (e.g. cork, resin, tannins, industrial extracts, wool and skins, hunting trophies, Christmas trees, decorative foliage, mosses and ferns, essential and cosmetic oils, etc.)

Usage of resin (*Pinus silvestris*) has been abandoned years ago because of consequent bad damages on trees. Chestnut is still used for tannins, but this is more a matter of chemical usage of wood than a matter of a non-wood product. There is a large number of forest species (120) used for industrial extracts, but the quantities gathered are rather small although usage is stable. Stable and quite high is also usage of Christmas trees, while usage of other decorative products is increasing. Hunting trophies are still the main motive for hunting for the majority of 23.000 hunters in Slovenia. From some 15% of the hunting area in Slovenia the trophies are sold to tourist hunters.

Services

24.5 Protection (against soil erosion by air or water, avalanches, mud and rock slides, flooding, air pollution, noise, etc.)

Protection function of forests in Slovenia is being evaluated as are the other forest functions as well. Where protection function of the forest dictates the way of forest management, forests are declared protection forests. Protection function is taken into account also in forests where it is not so much emphasised, but still has to be observed. Forest management practice is therefore oriented towards small scale interventions and regeneration under canopy. Clear-cutting is absolutely avoided.

24.6 Social and economic values (e.g. hunting and fishing, other leisure activities, including recreation, sport and tourism)

Forests are being evaluated also in respect to their increasing importance for recreation and tourism. Where these functions are recognised as important forests may be declared forests-with-a-special-purpose. On such areas forest management guidelines include necessary activities for the optimal functioning of forests in this sense, including the diversification of the forest structure and working out of the necessary recreation trails and roads as well as their maintenance. In case income from the forest is diminished because of the special management regime required, forest owners may demand compensation from the organisation interested in forest recreation and tourism. Hunting in Slovenia is not only regarded as a leisure activity. Hunters also have the duty to maintain and enhance the equilibrium between the vegetation potential of the forest and primary consumers (mammals). Nearly all secondary consumers are protected.

24.7 Aesthetic, cultural, historical, spiritual and scientific values (including landscape and amenity)

In Slovenia the following forest functions are recognised and evaluated in this context: education, research, natural heritage, cultural heritage and aesthetic. For the educational purposes there are a lot of forest nature trails worked out and maintained that are used for visits of the school children and for recreation. For research into forest ecosystems a network of forest reserves was established two decades ago. Most of them are declared natural heritage, but there are many other natural heritage sites recorded and preserved in the forest as well. The same is valid for the cultural heritage due to the good cooperation between the Forest Service and the Institute for Protection of Natural and Cultural Heritage. To the aesthetic function is paid special attention in recreation and tourist areas, although on the landscape level we can say that with the restriction of clear cutting and the close-to-nature orientation of forest management to the aesthetic function of forests is paid due regard in the whole country.

Table 25

Quantity and value of goods (wood and non-wood products) collected or harvested from forest and other wooded land

Purpose: To provide quantitative information on the importance of the role of forest and other wooded land in providing wood and non-wood goods

Country: SLOVENIA

Reference period: 1996

Please provide on a separate page (s) factual information or estimates on the quantity and/or value of the main goods (products) collected or harvested from forest and other wooded land in a recent year (or annual average of a period of years). The focus of this table is on non-wood products, but information is also requested on the value of wood produced in order to estimate the relative importance of the different products.

Ref.	Goods (products)	Official data (OD) or estimate (EST) mark OD or EST	Quantity harvested/collected		Value (Please provide data to the extent possible) National currency (bill. SIT)
			Unit:	Total	
25.1	Wood	OD	million m ³	2,4	17,5
25.2	Christmas trees	EST	million pieces	0,3	0,5
25.3	Mushrooms	OD + EST	tons	800	0,5
25.4	Honey	EST	tons	1500	0,8
25.5	Chestnuts	EST	tons	1500	0,3
25.6	Fruits and berries	EST	tons	600	0,2
25.7	Game meats	OD + EST	tons	840	0,5
25.8	Hunting trophies	EST	pieces	13000	1
25.9	(add more goods, if necessary)				

Note: Please provide consistency in the list of major goods (products) with table 24.

Remarks: Please indicate for each product what the nature of the value estimate is: market price, or measured at roadside or at retail price, income to forest owners, etc., and how this information was obtained.

Comments: These are data of the Ministry of Agriculture, Forest and Food production.

National currency: 100 SIT / ECU = 0,54

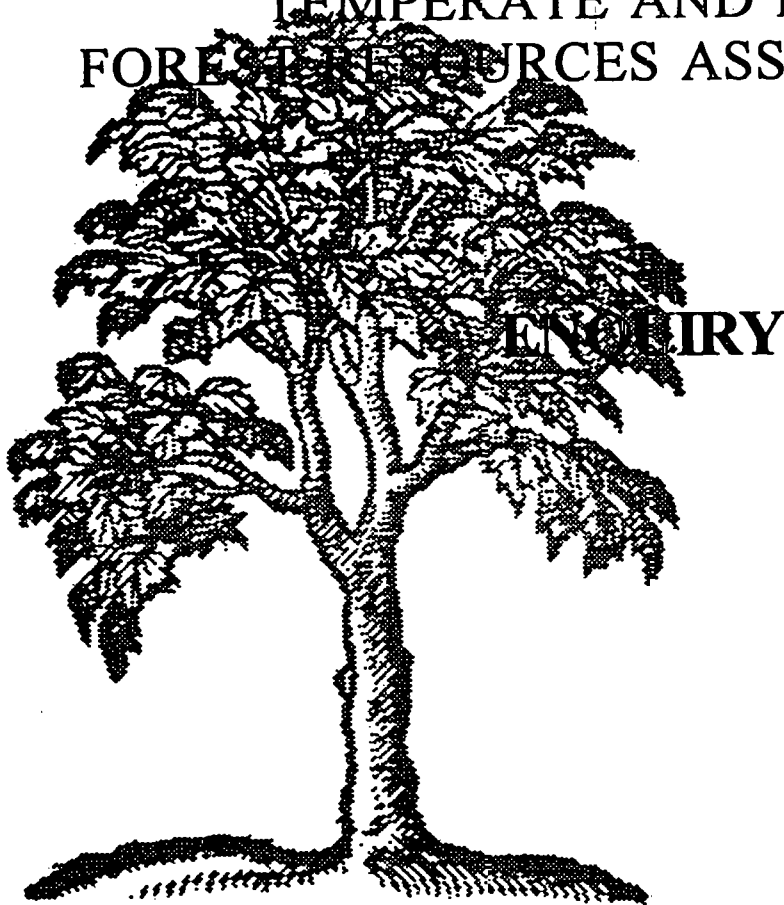


United Nations
Economic Commission for Europe



Food and Agriculture Organization
of the United Nations

UN-ECE/FAO
TEMPERATE AND BOREAL
FOREST RESOURCES ASSESSMENT 2000



United Nations
New York and Geneva, July 1997

UN-ECE/FAO TEMPERATE AND BOREAL FOREST RESOURCES ASSESSMENT 2000

General Explanatory Notes on the TBFRA-2000 enquiry

Objectives of the enquiry

There is a continuing need for reliable international information on the forest resource. Ideally, this information should be comprehensive, comparable between countries and over time, correspond to users' needs and be easily accessible to all. Furthermore, in view of the complexity of the issues and the cost of data collection and validation, it is desirable that international agencies should cooperate, pooling their knowledge and resources to provide the best possible data source for the world forest community as a whole.

This enquiry is intended to collect information, from national correspondents, on the forest resources of the temperate and boreal developed countries. The enquiry has been prepared, and the results will be processed and published by a partnership, led by UN-ECE/FAO in Geneva, and including other international and national agencies and experts, notably a team of specialists which advised the secretariat in drawing up the enquiry. The assessment for the temperate and boreal zones has been planned in close cooperation with those for tropical and other regions led by the Forestry Department of FAO Rome. The global forest resource assessment 2000 will synthesize the results of all the regional assessments.

The temperate and boreal assessment has been designed in order to bring together in one place information on all aspects of the forest resource, including not only forest area, but also ownership and management, biological diversity and protection, wood supply and carbon sequestration functions, forest condition, and the protective and socio-economic functions of forests. It is also intended to provide information, e.g. on quantitative indicators of sustainable forest management, which is needed in global and regional international policy discussions.

Background

The present enquiry is the latest in the series carried out by FAO and UN-ECE over the past five decades. The results of FAO's first survey were published in 1947, and its most recent global assessment was published in 1995¹. The global assessment combined the results of assessments carried out by FAO of the developing countries², both tropical and temperate, and by UN-ECE/FAO of the developed countries, temperate and boreal³.

Forest resource assessments of the temperate and boreal regions are carried out as part of the programme of work of the Joint FAO/ECE Working Party on Forest Economics and Statistics, a subsidiary body of the FAO European Forestry Commission and the UN/ECE Timber Committee. In

¹ *Forest Resources Assessment 1990: Global Synthesis*, FAO Forestry Paper 124, FAO, Rome 1995.

² *Forest Resources Assessment 1990: Tropical Countries*, FAO Forestry Paper 112, FAO, Rome, 1993.

³ *The Forest Resources of the Temperate Zones: The UN-ECE/FAO 1990 Forest Resource Assessment*, ECE/TIM/62, (Volume I and II), United Nations, New York, 1992 and 1993.

accordance with the programme of work, the present assessment is being undertaken under the guidance of a team of specialists, which has met on three occasions between 1995 and 1997 to prepare the enquiry, including the terms and definitions.

In addition, an Expert Consultation on Global Forest Resources Assessment was held in Kotka, Finland, in June 1996 ("Kotka"-III meeting), at which the framework of the Global FRA-2000 was elaborated. This meeting has been followed by a number of consultations with the leading experts in specific thematic areas of the forest resources assessment. The present temperate and boreal forest resources assessment (TBFRA-2000) has been prepared as an integral part of the global assessment, with particular care being taken to ensure that the terms and definitions used here are aligned with it.

In selecting questions for inclusion in the enquiry, a number of principles have been followed:

- (1) The information should be available as firm data or informed estimates, if not for all countries, at least for enough to make it possible to provide representative information for all parts of the regions covered;
- (2) The compilation and submission of the information should not involve the national correspondents in an unacceptably heavy workload;
- (3) The comparability should be maintained to the extent possible with the previous and earlier assessments, so that developments in the resource over the long term can be monitored;
- (4) The data should correspond to the extent possible with the needs for information about the forest resource of different user groups, including policy makers, land use and resource managers, forest industries, and others concerned with the protection, management and use of the resource for economic, social and environmental purposes;
- (5) With regard to (4), it should cover to the extent possible information about the forest resources called for at the recent post-UNCED (Rio de Janeiro, 1992) international meetings, notably the Ministerial Conference on the Protection of Forests in Europe (Helsinki, 1993) and the Montreal Process. This information includes indicators relating to biological diversity, climate change and carbon sequestration, nature conservation, forest quality, changes over time and so on, some of which can not be collected in quantitative form and may depend on subjective judgement;
- (6) The information that countries are asked to provide should be confined to what is considered important to collect at the international level.

Practical arrangements for the collection of information from countries

Role of the national correspondents

The system successfully used for previous assessments of relying on correspondents appointed by each country to collect national information and fill in the enquiry is being maintained and strengthened. Countries have been invited to nominate correspondents, and this enquiry is being sent directly to them. Compared with previous assessments, even greater reliance is being placed on the national correspondents, and it is expected that a close cooperation will be developed between them and the UN-ECE/FAO secretariat in Geneva. The national correspondents will be the main channel of communication between the secretariat and the national authorities. As part of this, a meeting of correspondents is being convened in November 1997, at which the enquiry is being explained and problems being experienced by correspondents discussed and resolved.

Replies to some questions in the enquiry involve a certain level of subjective judgements by the national correspondents. National correspondents are requested to explain the basis for their judgement.

Because of the variety of information being asked for in the enquiry, and because of some of it is outside the scope of traditional national forest inventories and responsibilities of national forest authorities, correspondents are encouraged to establish an inter-sectoral group of specialists, who between them can cover the various parts of the enquiry.

Data to be supplied

Much of the information called for in the enquiry will be derived from data collected in the national forest inventories. However, those data are based on terms and definitions developed by each country, which may differ from those used in this enquiry. Great emphasis has been put, at "Kotka-III" and other meetings, on the need for national data collected in this enquiry to be as comparable as possible. This will require correspondents to adapt the national data, where necessary, to the terms and definitions used here. These are set out in the document "Terms and definitions to be applied in the UN-ECE/FAO Temperate and Boreal Forest Resources Assessment 2000", a copy of which is attached to the enquiry. In filling in the enquiry, it is most important that correspondents first check whether their national data conform with the FAO/ECE terms and definitions; and if not, convert them to those terms and definitions. Methods for doing this will be discussed at the meeting of correspondents in November 1997.

Data source and quality boxes, which are placed below tables of the enquiry, request national correspondents to provide objective information by which it would be possible to evaluate the reliability and comparability of the information supplied for the TBFRA-2000.

The reference period should be the most recent one for which data are available, preferably the mid-1990s or later. In many cases it will be a year or number of years during which the latest national forest inventory was undertaken. If the original source data are out of date, e.g. relate to a period earlier than 1990, it would be highly desirable for correspondents to adjust the data to a recent period, even if this involves an element of estimation.

Correspondents are also requested to supply two copies of the national forest inventory results or other original source data publication. If not available in English, French or Russian, it would be most helpful if the key terms (and, if possible, their definitions) could be provided in one of those languages.

Scope and contents of the enquiry

While retaining many features of earlier assessments, the scope of the present enquiry has been adjusted to meet "new" information requirements, as mentioned on page 1. Information requested on the more "traditional" aspects of forest inventory, notably that relevant to wood supply, has been considerably streamlined, while that on the services of the forest, including nature conservation, biological diversity, protection and socio-economic functions, has been developed in an effort to meet new information needs. In addition, more emphasis has been put on information on changes over time in the forest resource, also in response to demands for such information and to bring it more into line with information already being collected for the developing countries.

The information is being collected in a series of tables (1 to 25) grouped in sections under the following headings:

1. **General forest resource information (tables 1 to 7)**
2. **Biological diversity and protection status (tables 8 to 12)**
3. **Wood supply and carbon sequestration functions (tables 13 to 17)**
4. **Forest condition (tables 18 to 20)**
5. **Protective and socio-economic functions (tables 21 to 25).**

For the most part, the information to be supplied is quantitative (area, volume, mass, etc.). A number of tables call for qualitative or descriptive information: (tables 9, 10, 12, 22, 23, and 24). For all tables, correspondents are invited to add comments and explanations about the information supplied, for example regarding the status (official data or estimates), methods of adaptation from original source data to conform with FAO/ECE definitions, etc.. Correspondents are encouraged to be bold: it is better to provide an informed estimate, indicated as such, than no data at all. The secretariat stands ready to assist correspondents at any time in this task. The description of the methods of adjustment will be published, in full, in supporting documentation to the TBFA-2000.

In the case of two tables (table 19 - forest fire, and table 20 - forest condition), information is already being collected at the international level from the majority of countries covered by this assessment. If in doubt about the existence and source of this information for their respective countries, correspondents should consult the secretariat. For those countries already supplying internationally comparable data in response to other questionnaires, there is no need to compile a new set of data.

The Temperate and Boreal Forest Resources Assessment 2000, the secretariat for which is the Timber Section of the UN/ECE Trade Division, Geneva, is being coordinated with the Tropical Forest Resources Assessment 2000, whose secretariat is the Forestry Department of FAO, Rome, which also has overall responsibility for the Global Assessment. The "Kotka-III" meeting drew up the list of information items that should be collected for all countries, and care has been taken in preparing the enquiry for the temperate and boreal assessment that it covers all this "global" information, and these parameters are shown in the tables in bold print. In order to make the global assessment 2000 as comprehensive and reliable as possible, correspondents are urged to make special efforts to supply all the information marked in bold and to adapt it, where necessary, to conform to the FAO/ECE definitions.

- Indicators for sustainable forest management

A number of international processes, notably in the temperate and boreal zone, the Pan-European and the Montreal processes, have developed criteria and indicators of sustainable forest management (SFM). While the political responsibility of reporting remains with signatory governments, it has been agreed that ECE/FAO should collect as much information as possible on the quantitative indicators of sustainable forest management, developed by the Pan-European process. The preliminary results of this enquiry will therefore be presented to the Lisbon Ministerial Conference on the Protection of Forests in Europe, scheduled for summer 1998.

- **Timetable**

The enquiry is being circulated in summer 1997, following review by the Joint FAO/ECE Working Party on Forest Economics and Statistics (Geneva, 21-23 May 1997). The deadline for submitting replies from countries is:

31 January 1998

It is suggested that correspondents complete as much of the enquiry as possible by the time of the *ad hoc* meeting of TBFRA-2000 national correspondents, scheduled for 17-19 November 1997, which will provide an opportunity for any problems encountered with it to be resolved in co-operation with other country correspondents and the secretariat.

During 1998 the replies will be compiled and checked by the FAO/ECE secretariat, which may involve further discussion with the correspondents where there appear to be errors, inconsistencies or gaps in the information supplied. The results of the assessment will be prepared for publication in 1999 and will also be combined with those obtained by FAO for other regions in order to produce a global assessment by the end of the year.

- **Correspondence with the secretariat**

All correspondence in connection with this enquiry, including requests for clarifying of terms, etc, should be addressed to:

Mr. Alexander V. Korotkov
Timber Section, Trade Division
Economic Commission for Europe
Palais des Nations
CH - 1211 Geneva 10
Switzerland

Tel: + 41 22 917 2879

Fax: + 41 22 917 0041

E-mail: Alexander.Korotkov@unece.org

The questionnaire is being distributed in a traditional paper version and on a diskette (EXCEL 5.0 spreadsheet). The latter is preferred by the secretariat, as an automatic checking procedure is incorporated, and this avoids re-entering the data. Those cells (or block of cells) in tables which are shaded grey should not be filled in.

Symbols used

ha	- hectare
cm	- centimetre
m	- metre
m ³	- cubic metre, solid volume
m ³ o.b.	- cubic metre overbark, solid volume
m ³ u.b.	- cubic metre underbark, solid volume
m.t. o-d.	- metric tonne, oven-dry
*	- unofficial figure or estimate
-	- nil or less than half a unit
..	- figure unknown or not available.

Enquiry for the TBFRA-2000
(UN-ECE/FAO Temperate and Boreal Forest Resources Assessment 2000)

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**ENQUIRY FOR THE UN-ECE/FAO
TEMPERATE AND BOREAL FOREST RESOURCES ASSESSMENT 2000**

Enquiry completed by:

Date of completion of reply to enquiry:

Full address:

.....

.....

Telephone (including country and city code):

Fax (including country and city code):

E-mail:

Notes:

1. The General Explanatory Notes attached to this Enquiry give the background to it and other information and guidance which is intended to assist the national experts who are completing the tables. It is strongly recommended that the General Explanatory Notes are read carefully. If any clarifications are needed, the secretariat is ready to help at any time. Please contact Mr. Christopher F. L. Prins, or Mr. Alexander V. Korotkov at the address below, or by telephone: + 41 22 917 2879 or + 41 22 917 28 74; or by fax: + 41 22 917 0041; or via E-Mail: Alexander.korotkov@unece.org

2. The terms and definitions used in this Enquiry are contained in document "Terms and definitions to be applied in the UN-ECE/FAO Temperate and Boreal Forest Resources Assessment 2000", a copy of which is attached. In order that the data be comparable between countries, it is important that data reported in this Enquiry conform to these terms and definitions, that is to say they are converted from the terms and definitions used nationally. It is also desirable to have some objective measure of the reliability of the data shown. The questions below the tables invite national correspondents to provide this information for a few key parameters, as it is unrealistic to evaluate in detail each figure supplied.

3. Attributes marked in bold in the following tables will be included in the FAO Global Forest Resources Assessment 2000.

4. Please return the completed Enquiry to:

**Alexander V. Korotkov
Timber Section, Office 386
Trade Division
Economic Commission for Europe
United Nations
Palais des Nations
CH - 1211 Geneva 10**

Not later than: 31 January 1998

Section I

General Forest Resource Information (Tables 1 to 7)

The basic parameter of the forest resource assessment, to which all the others refer, is the area of forest and of other wooded land. This first section of the TBFRA-2000 therefore concentrates on the size and basic nature of the forest resource and of changes over the last decade or so. Attributes such as ownership, "naturalness", intensity of management (or lack of it) and basic silvicultural characteristics, will influence to a large degree the forest's biological diversity, its ability to supply wood or sequester carbon, its vulnerability to certain forms of damage and its ability to carry out its social and protection function. For that reason, these basic parameters are grouped together at the beginning of the TBFRA-2000.

Correspondents' attention is drawn to two major aspects:

- the definitions of "forest" and of "other wooded land" have been changed from those in FRA-1990, in order to achieve comparability with data for the tropical regions, notably with regard to the dividing line between "forest" and "other wooded land". Every effort should be made to ensure that national data are adjusted to fit the agreed international definitions. In the interests of transparency and scientific accuracy, correspondents are requested to record, in detail, the source of the original data, how they have been adjusted to the international definitions, and the likely range within which the true value is likely to be. Taken together, these pieces of information will make it possible to make a quantified and objective assessment of the inter-country comparability of the TBFRA-2000 data and of the range of uncertainty surrounding the final aggregations.

- in the global forest policy debate, the extent of forest undisturbed by man, which it is being converted to other types of forest or non-forest land use have received much attention: however even in the tropical regions, there has been little objective information to measure trends, while in the temperate regions, the situation is complicated by many centuries of low intensity management or disturbance, affecting almost all forest areas. There are no reliable and comprehensive sets of internationally comparable data on the extent of natural forest in temperate regions (the question was not asked in FRA-1990). Correspondents are therefore requested to make every effort to provide information on forest and other wooded land undisturbed by man, which correspond to the agreed definition, and to provide the requested information on the criteria used and choices made, so that the data published in TBFRA-2000 may be as comparable between countries as possible. Likewise, the same care should be taken for the identification of "plantations", as the definition agreed is new and does not necessarily coincide with normal usage in many countries.

Table 1
Total area by main classes

Purpose: (a) To show the relative importance of forest and other wooded land as compared with other land cover; and (b) to provide the reference area for many other parameters covered in the enquiry.

Country:

Reference period:

Ref.		Area (1000 ha)
1.1	Total area	
1.2	- Inland water	
1.3	- Land area	
1.4	- Forest and other wooded land	
1.5	- Forest	
1.6	- Other wooded land	
1.7	- Other land	

Check: (1.2) Inland water + (1.3) Land area = (1.1) Total area OK
 (1.4) Forest and other wooded land + (1.7) Other land = (1.3) Land area OK
 (1.5) Forest + (1.6) Other wooded land = (1.4) Forest and other wooded land OK

Data source and quality

Source:.....
Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFRA-2000 definitions?
Forest: Yes / No
Other wooded land: Yes / No
 If adjusted, description of adjustment process: Attached / Not attached
 Specifications of known deviations from TBFRA-2000 definitions: Attached / Not attached

Likely range: Taking account of errors due to measurement, sampling, and adjustment, please indicate the range within which the true value is likely to be, for the following parameters:
Forest: from to thousand ha
Other wooded land: from to thousand ha

Comments:.....

Table 2

Forest and other wooded land according to "naturalness"

Purpose: To provide an indication of the extent to which the natural forest cover has been modified by man, and the intensity of management.

Country:

Reference period:

Ref.		Area (1000 ha)
2.1	Forest	(-1.5)
2.2	- Forest undisturbed by man	
2.3	- Semi-natural forest	
2.4	- Plantations	
2.5	Other wooded land	(-1.6)
2.6	- Other wooded land undisturbed by man	
2.7	- Semi-natural other wooded land	

Please describe on a separate sheet:

- The trends in the area of the above classes over the last 100-200 years, concentrating on trends since 1950s, with quantitative estimates, if possible.
- The nature and driving forces of these structural trends and underlying circumstances.

Check: (2.2) Forest undisturbed by man + (2.3) Semi-natural forest + (2.4) Plantations - (2.1) Forest OK

(2.6) Other wooded land undisturbed by man + (2.7) Semi-natural other wooded land - (2.5) Other wooded land OK

Data source and quality	
Source:.....	
Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFRA-2000 definitions?	
Forest undisturbed by man:	Yes / No
Semi-natural forest:	Yes / No
Plantations:	Yes / No
Other wooded land undisturbed by man:	Yes / No
Semi-natural other wooded land:	Yes / No
If adjusted, description of adjustment process:	Attached / Not attached
Specifications of known deviations from TBFRA-2000 definitions:	Attached / Not attached
Likely range: Taking account of errors due to measurement, sampling, and adjustment, please indicate the range within which the true value is likely to be, for the following parameters:	
Forest undisturbed by man:	from to thousand ha
Semi-natural forest:	from to thousand ha
Plantations:	from to thousand ha
Other wooded land undisturbed by man:	from to thousand ha
Semi-natural other wooded land:	from to thousand ha

Comments:.....

Table 3
Forest and other wooded land according to availability for wood supply

Purpose: To provide an estimate of wood supply potential, broken down by species groups.

Country:

Reference period:

Ref.		Total (1000 ha)
3.1	Forest, total	(-1.5)
3.2	- Predominantly coniferous	
3.3	- Predominantly broadleaved	
3.4	- Predominantly bamboos, palms, etc.	
3.5	- Mixed	
3.6	Forest available for wood supply	
3.7	- Predominantly coniferous	
3.8	- Predominantly broadleaved	
3.9	- Predominantly bamboos, palms, etc.	
3.10	- Mixed	
3.11	Forest not available for wood supply	
3.12	- For conservation/protection reasons	
3.13	- For economic reasons	
3.14	Other wooded land	(-1.6)
3.15	- Predominantly coniferous	
3.16	- Predominantly broadleaved	
3.17	- Predominantly bamboos, palms, etc.	
3.18	- Mixed	

Note: If the area of forest voluntarily excluded from wood supply, i.e. forest which is legally and economically "available for wood supply" but where the forest owner has decided not to harvest wood, can be quantified, please specify.

Check: Sum of (3.2+3.3+3.4+3.5) = (3.1) Forest, Total OK
 Sum of (3.7+3.8+3.9+3.10) = (3.6) Forest available for wood supply OK
 Sum of (3.12+3.13) = (3.11) Forest not available for wood supply OK
 Sum of (3.15+3.16+3.17+3.18) = (3.14) Other wooded land OK

Data source and quality	
Source:	
Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFRA-2000 definitions?	
<i>Predominantly coniferous:</i>	Yes / No
<i>Predominantly broadleaved:</i>	Yes / No
<i>Predominantly bamboos, palms, etc.:</i>	Yes / No
<i>Mixed:</i>	Yes / No
If adjusted, description of adjustment process:	Attached / Not attached
Specifications of known deviations from TBFRA-2000 definitions:	Attached / Not attached
Likely range: Taking account of errors due to measurement, sampling, and adjustment, please indicate the range within which the true value is likely to be, for the following parameters:	
<i>Predominantly coniferous:</i>	from to thousand ha
<i>Predominantly broadleaved:</i>	from to thousand ha
<i>Predominantly bamboos, palms, etc.:</i>	from to thousand ha
<i>Mixed:</i>	from to thousand ha

Comments:

Table 4
High forest and coppice

Purpose: The wood supply potential, the biodiversity and other factors are strongly affected by whether the forest is managed as high forest or as coppice.

Country:

Reference period:

Ref.		Area (1000 ha)
4.1	Forest available for wood supply	(-3.6)
4.2	- High forest	
4.3	- Coppice and coppice with standards	
4.4	Forest not available for wood supply	(-3.11)
4.5	- High forest	
4.6	- Coppice and coppice with standards	

Check: (4.2) High forest + (4.3) Coppice and coppice with standards = (4.1) Forest available for wood supply OK
 (4.5) High forest + (4.6) Coppice and coppice with standards = (4.4) Forest not available for wood supply OK

Data source and quality	
Source:	.....
Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFRA-2000 definitions?	
High forest:	Yes / No
Coppice and coppice with standards:	Yes / No
If adjusted, description of adjustment process:	Attached / Not attached
Specifications of known deviations from TBFRA-2000 definitions:	Attached / Not attached
Likely range: Taking account of errors due to measurement, sampling, and adjustment, please indicate the range within which the true value is likely to be, for the following parameters:	
High forest:	from to thousand ha
Coppice and coppice with standards:	from to thousand ha

Comments:.....

Table 5
Ownership and management of forest

Purpose: To provide data on the distribution of forest by ownership categories and the extent of which it is under management, as both these factors strongly influence silvicultural treatment, if any, and wood supply potential. They are a crucial element in policy formulation.

Country:

Reference period:

Ref.		Total area	<i>Of which:</i> Managed
		(1000 ha)	
5.1	Forest, total	(=3.1)	
5.2	- In public ownership		
5.3	- Owned by indigenous or tribal peoples		
5.4	- In private ownership		
	<i>Of which</i>		
5.5	Forest available for wood supply	(=3.6)	
5.6	- In public ownership		
5.7	- State ownership		
5.8	- Owned by other public institutions		
5.9	- Owned by indigenous or tribal peoples		
5.10	- In private ownership		
5.11	- Owned by individuals		
5.12	- Owned by forest industries		
5.13	- Owned by other private institutions		
5.14	Other wooded land		
5.15	- In public ownership		
5.16	- Owned by indigenous or tribal peoples		
5.17	- In private ownership		

Note: This table refers to ownership, which may differ from use, especially in the case of indigenous and tribal peoples. For forest use by indigenous and tribal peoples, see table 22.

Check: Sum of (5.2+5.3+5.4) = (5.1) Forest, total OK
 Sum of (5.6+5.9+5.10) = (5.5) Forest available for wood supply OK
 Sum of (5.7 and 5.8) = (5.6) In public ownership OK
 Sum of (5.11+5.12+5.13) = (5.10) In private ownership OK
 Sum of (5.15+5.16+5.17) = (5.14) Other wooded land OK

Data source and quality

Source:

Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFA-2000 definitions?

In public ownership: Yes / No

Owned by indigenous or tribal peoples: Yes / No

In private ownership: Yes / No

If adjusted, description of adjustment process: Attached / Not attached

Specifications of known deviations from TBFA-2000 definitions: Attached / Not attached

Likely range: Taking account of errors due to measurement, sampling, and adjustment,

please indicate the range within which the true value is likely to be, for the following parameters:

In public ownership: from to thousand ha

Owned by indigenous or tribal peoples: from to thousand ha

In private ownership: from to thousand ha

Comments:

Table 6
Number and size of holdings of forest and other wooded land

Purpose: To provide information on the structure of holdings, which is useful for policy formulation relating to wood supply potential, nature conservation and the socio-economic functions of the forest.

Country:

Reference period:

Ref.		Area (1000 ha)		Number of holdings
		Forest and other wooded land	<i>of which:</i> Forest	Forest and other wooded land
6.1	In public ownership			
6.2	- Less than 3 ha			
6.3	- 3 to 5 ha			
6.4	- 6 to 10 ha			
6.5	- 11 to 20 ha			
6.6	- 21 to 50 ha			
6.7	- 51 to 100 ha			
6.8	- 101 to 500 ha			
6.9	- 501 to 10,000 ha			
6.10	- 10,001 to 100,000 ha			
6.11	- More than 100,000 ha			
6.12	In private ownership			
6.13	- Less than 3 ha			
6.14	- 3 to 5 ha			
6.15	- 6 to 10 ha			
6.16	- 11 to 20 ha			
6.17	- 21 to 50 ha			
6.18	- 51 to 100 ha			
6.19	- 101 to 500 ha			
6.20	- 501 to 10,000 ha			
6.21	- 10,001 to 100,000 ha			
6.22	- More than 100,000 ha			

Check: Sum of (6.2 to 6.11) = (6.1) In public ownership
Sum of (6.13 to 6.22) = (6.12) In private ownership

OK

OK

Comments:

Table 7
Changes in area of forest and other wooded land over time by main categories

Purpose: To provide information on changes over time for a few key parameters. (Because of changes in definitions, it is not possible to compare data for the TBFRA-2000 with those of FRA-1990 (temperate zones).)

Country:

Previous reference period:

Latest reference period:

Ref.		Previous reference period	Latest reference period	Average annual change between reference periods
		(1000 ha)		
7.1	Forest		(-1.5)	
7.2	- Forest available for wood supply		(-3.6)	
7.3	- Forest not available for wood supply		(-4.4)	
7.4	Other wooded land			

Check:

Previous reference period: (7.2) Forest available for wood supply + (7.3) Forest not available for wood supply = (7.1) Forest

OK

Latest reference period: (7.2) Forest available for wood supply + (7.3) Forest not available for wood supply = (7.1) Forest

OK

Comments:.....

Section II

Biological Diversity and Protection Status (Tables 8 to 12)

It is now widely accepted that the conservation of biological diversity is a major function of forests, and that this aspect ought to be covered in quantitative assessments of the forest resource, at the national and international levels. However, this task is difficult, even from a conceptual point of view, as biological diversity as such is difficult to measure directly, except on a local scale and in the context of scientific research. Biological diversity as a concept may be applied at a number of different levels, notably the *ecosystem*, the *species*, and the *genetic* level. Naturally, species other than trees must also be considered. Even where promising concepts, such as biological diversity indices, are being developed they are often closely linked to a particular ecosystem type or region.

Furthermore, it is often difficult and expensive to capture the raw data necessary to construct the index. Therefore, in order to provide an indication of the status and trends for forest biological diversity at the international level, it is necessary at present to collect quantitative data on *proxies* for biological diversity, and on *actions* taken to preserve biological diversity. Furthermore, given the huge differences between regions and subregions, it appears desirable to concentrate on indicators of the *direction of change*, rather than attempting objective comparisons between forests in very different conditions. The parameters chosen to assess the situation and trends for forest biological diversity are as follows:

- protection status, which is a rather objective indicator of action taken to protect biological diversity (although not necessarily of the need for or effectiveness of the protection measures);
- the simplest measure of richness of forest biological diversity is the number of tree species (although some areas, such as boreal or mountain ecosystems, have naturally less species than others). The balance between native and introduced species is also a preliminary indication of the extent to which natural or semi-natural ecosystems have been replaced by more intensely managed forests;
- the extent to which forest occurring species are at risk or endangered is an important indicator of biological diversity in forest and other wooded land as well as threats to it;
- the way in which forests are regenerated or extend to other land is an indicator, both of the intensity of management (a major influence on biological diversity) and of the genetic diversity of forest tree species;
- genetic diversity in managed forests can be measured to some extent by the provenance of genetic material used for planting, with information by species: this gives a clear indication of the extent to which the forests being established coincide with the genetic material native to that region.

None of the above information has been requested in earlier forest resource assessments, and the concepts must of necessity be considered experimental. For that reason, correspondents are requested:

- to explore, if necessary new sources of information, notably academic research and environmental surveys;
- to make estimates if necessary, rather than providing no information at all;
- to comment on the format of the tables and questions asked, and to make suggestions for future international assessments of forest biological diversity.

Table 8
Protection status

Purpose: To provide information on how much forest and other wooded land is protected to conserve biological diversity and whether this area is increasing or not.

Country:

Reference period:

Ref.		Area (1000 ha)
8.1	Forest	=(1.5)
8.2	- In IUCN categories I and II	
8.3	- In IUCN categories III to VI	
8.4	Other wooded land	=(1.6)
8.5	- In IUCN categories I and II	
8.6	- In IUCN categories III to VI	

Check: Sum of (8.2 + 8.3) = (8.1) Forest OK
 Sum of (8.5 + 8.6) = (8.4) Other wooded land OK

Please indicate trends over the last 10-20 years in the area of forest and other wooded land in the IUCN protection categories with quantitative information, if possible.

Data source and quality	
Source:	
Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFRA-2000 definitions?	
Forest	
<i>In IUCN categories I and II:</i>	Yes / No
<i>In IUCN categories III to VI:</i>	Yes / No
Other wooded land	
<i>In IUCN categories I and II:</i>	Yes / No
<i>In IUCN categories III to VI:</i>	Yes / No
If adjusted, description of adjustment process:	Attached / Not attached
Specifications of known deviations from TBFRA-2000 definitions:	Attached / Not attached
Likely range: Taking account of errors due to measurement, sampling, and adjustment, please indicate the range within which the true value is likely to be, for the following parameters:	
Forest	
<i>In IUCN categories I and II:</i>	from to thousand ha
<i>In IUCN categories III to VI:</i>	from to thousand ha
Other wooded land	
<i>In IUCN categories I and II:</i>	from to thousand ha
<i>In IUCN categories III to VI:</i>	from to thousand ha

IUCN categories (see attached "Terms and Definitions")

- I. Strict nature reserve/wilderness area
- II. National Park
- III. Natural monument
- IV. Habitat/species management area
- V. Protected landscape/seascape
- VI. Managed resource protection area

Comments:

Table 9

Tree species occurring on forest and other wooded land

Purpose: To provide an indication of how many species of trees occur on forest and other wooded land, and whether they are indigenous or introduced.

Country:

Reference period:

Please provide information on the tree species occurring on forest and other wooded land (scientific genus and species) on separate sheets under the following headings:

County/Region* (to be decided by countries):

Ref.		Species	Abundance**
9.1	Native (indigenous) tree species occurring on forest and other wooded land		
9.2	Introduced tree species on forest and other wooded land		

Note: * Larger countries may wish to fill in this table separately for different geographic regions.
 ** e.g. "common", "rare", "at risk", "endangered"

May any introduced species be considered as "domesticated"?	Yes / No
If yes, please list them with the indication of the date of their introduction in the region (country):	
.....	
.....	
.....	

Comments:.....

Table 10
Forest-occurring species at risk or endangered

Purpose: To provide information on the number of forest-occurring species (plants and animals) that are rare or endangered, thereby giving an indication of the state of biological diversity in forest and other wooded land.

Country:

Reference period:

Ref.		All species in country				Forest occurring species			
		Total species	<i>Of which:</i> endangered	Endemic species	<i>Of which:</i> endangered	Total species	<i>Of which:</i> endangered	Endemic species	<i>Of which:</i> endangered
10.1	Trees (coniferous and broadleaved species)								
10.2	Other vascular plants (flowers)								
10.3	Ferns								
10.4	Mosses								
10.5	Lichens								
10.6	Mammals								
10.7	Birds								
10.8	Other vertebrates (fish, amphibians, reptiles, snakes)								
10.9	Butterflies								

Problematic introduced species: (Please note any introduced species which create problems for particular forest ecosystems, and indicate the type of problem posed, e.g. invasive alien species preventing the other tree species from regenerating, or an introduced exotic deer species that is out-competing indigenous species and thus causing an imbalance in the forest ecosystem).

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Endangerment status categories: Please use the attached sheet to calculate how many species in your country are endangered. Include all species which would be ranked in the pre-1994 IUCN ranks "Ex/E", "E", "V", "R" and "I", or in the new ranks "EW", "CR", "EN" and "VU" (see annex to the table). The IUCN/WCMC publications "Threatened plants of the world" may be helpful, but many countries have national Red Lists which would be more appropriate.

Comments:.....

Definitions to Table 10
(New (post-1994) IUCN Endangerment Status Categories)

Extinct (Ex)

A species is Extinct when there is no reasonable doubt that the last individual has died.

Extinct in the Wild (EW)

A species is Extinct in the Wild when it is known only to survive in cultivation, in captivity or as a naturalised population (or populations) well outside the past range. A species is presumed extinct in the wild when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the species's life cycle and life form.

Critically Endangered (CR)

A species is Critically Endangered when it is facing an extremely high risk of extinction in the wild in the immediate future.

Endangered (EN)

A species is Endangered when it is not Critically Endangered but is facing a very high risk of extinction in the wild in the near future.

Vulnerable (VU)

A species is Vulnerable when it is not Critically Endangered or Endangered but is facing a high risk of extinction in the wild in the medium-term future.

Lower Risk (LR)

A species is Lower Risk when it has been evaluated, but does not satisfy the criteria for any of the categories Critically Endangered, Endangered or Vulnerable.

Data Deficient (DD)

A species is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A species in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. Data Deficient is therefore not a category of threat or Lower Risk. Listing of species in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate. It is important to make positive use of whatever data are available. In many cases, great care should be exercised in choosing between DD and threatened status. If the range of a species is suspected to be relatively circumscribed, if a considerable period of time has elapsed since the last record of the species, threatened status may well be justified.

Not Evaluated (NE)

A species is Not Evaluated when it has not yet been assessed against the criteria.

For further information please write to: The Information Officer, World Conservation Monitoring Centre, 219 Huntingdon Road, Cambridge CB3 0DL, United Kingdom. Tel: +44 1223 277 314; Fax: +44 1223 277 136; E-mail: info@wcmc.org.uk

Table 11
Regeneration and extension of forest

Purpose: To provide information on the extent of regeneration and extension of forest over a recent 10-year period by natural or artificial means, in order to assess management methods and intensity and changes in genetic composition.

Country:

Ten-year period: 19..... to 19.....

Ref.		Annual average area over 10-year period	<i>Of which:</i> With introduced tree species
		(1000 ha)	
11.1	A. <u>Regeneration of forest (reforestation), total</u>		
11.2	- Natural regeneration		
11.3	- Natural regeneration enhanced by planting		
11.4	- Coppice sprouting		
11.5	- Planting or seeding		
11.6	B. <u>Extension of forest, including afforestation and reforestation of other wooded land, total</u>		
11.7	- Natural colonization of non-forest land to forest		
11.8	- Natural conversion of other wooded land to forest		
11.9	- Planting or seeding of non-forest land		
11.10	- Planting or seeding of other wooded land		
11.11	C. <u>Natural colonization of non-forest land to other wooded land</u>		

Check: Sum of (11.2+11.3+11.4+11.5) = (11.1) Regeneration of forest (reforestation), total OK

Sum of (11.7+11.8+11.9+11.10) = (11.6) Extension of forest, including afforestation and reforestation of other wooded land, total OK

Data source and quality

Source:

Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFR-2000 definitions?

Regeneration of forest (reforestation), total Yes / No

Natural regeneration: Yes / No

Natural regeneration enhanced by planting: Yes / No

Coppice sprouting: Yes / No

Planting or seeding: Yes / No

If adjusted, description of adjustment process: Attached / Not attached

Specifications of known deviations from TBFR-2000 definitions: Attached / Not attached

Likely range: Taking account of errors due to measurement, sampling, and adjustment, please indicate the range within which the true value is likely to be, for the following parameters:

Regeneration of forest (reforestation), total: from.....to.....thousand ha

Natural regeneration: from.....to.....thousand ha

Natural regeneration enhanced by planting: from.....to.....thousand ha

Coppice sprouting: from.....to.....thousand ha

Planting or seeding: from.....to.....thousand ha

Comments:.....

Table 12
Species diversity and origin of planting material used in the forest

Purpose: To provide information on trends in species diversity and origin of planting material used in managed forests.

Country:

Ten-year period: 19..... to 19.....

Ref.		Total, <i>of which</i>	Known local provenance	Known non-local provenance	Unknown provenance
		(ha/year)			
	Indigenous species (specify) ¹				
12.1					
12.2					
12.3					
12.4					
12.5					
12.6					
12.7					
12.8					
	(add more species, if necessary)				
	Introduced species: (specify) ¹				
12.11					
12.12					
12.13					
12.14					
12.15					
12.16					
12.17					
12.18					
12.19					
12.20					
	(add more species, if necessary)				

Note: ¹ Please provide local and scientific names.

Comments:

Section III

Wood supply and carbon sequestration functions (Tables 13 to 17)

The volume of wood likely to be available in the short and long term on a sustainable basis has always been at the centre of concerns of forest inventory at the national and international level. The importance of this topic has not diminished in any way, even though this concern has been joined by others. This section includes detailed questions on how much wood there is (growing stock), how much and how fast it is growing (increment), when it will reach maturity (age class structure) and how much and how fast it is being harvested (fellings and removals).

For growing stock and increment, a clear distinction is made between forests "available for wood supply" and others. Taken together this information makes it possible to assess the level of sustainable wood supply. However the biological processes which determine wood supply are the same as those which "sequester" carbon: storing it in vegetation, notably wood, through the process of photosynthesis. Thus, the same information as for wood supply, converted into different units (tons of oven dry biomass), is an essential input for the work of those investigating global climate change and carbon flows.

Correspondents' attention is drawn to the fact that the definitions of growing stock and a number of other parameters have been changed, to include all trees, with no minimum diameter size. The data should be adjusted to the agreed definitions.

Table 13

Age-class distribution of high forest available for wood supply

Purpose: To provide information on the distribution by age-class and species groups of high forest available for wood supply as an indication of the extent and timing of future sustainable wood supply and of the structure of the forest.

Country:

Reference period:

Ref.		High forest available for wood supply (1000 ha)				
		Predominantly coniferous	Predominantly broadleaved	Predominantly bamboos, palms, etc.	Mixed	Total
13.1	Total					
13.2	- Uneven-aged					
13.3	- Even-aged					
13.4	- Under regeneration					
13.5	- 10 years or less					
13.6	- 11 to 20 years					
13.7	- 21 to 40 years					
13.8	- 41 to 60 years					
13.9	- 61 to 80 years					
13.10	- 81 to 100 years					
13.11	- 101 to 120 years					
13.12	- 121 to 140 years					
13.13	- Over 140 years					
13.14	- Unknown age					

Check: Sum of (13.4 to 13.13) = (13.3) Even-aged OK
 (13.2) Uneven-aged + (13.3) Even-aged + (13.14) Unknown age = (13.1) Total OK

Note: The option to supply data on individual "commercial species" or species groups separately is open and would be welcomed.

Comments:

Table 14
Total woody biomass and the volume of growing stock

Purpose: To provide information on the mass and volume of tree and other woody biomass, thereby indicating the role played by forest resources in carbon storage; and the volume of growing stock as an indicator of the forest potential.

Country:

Reference period:

Ref.		Standing volume		Woody biomass
		Growing stock	Dead trees	
		(1000 m3 overbark)		(1000 m.t. oven-dry)
		(A)	(B)	(C)
	<u>Above-stump volume and biomass</u>			
14.1	- Trees on forest, total			
14.2	- Coniferous			
14.3	- Broadleaved			
14.4	- Other (bamboos, palms, etc.)			
14.5	- Trees on forest available for wood supply			
14.6	- Coniferous			
14.7	- Broadleaved			
14.8	- Other (bamboos, palms, etc.)			
14.9	- Trees on forest not available for wood supply			
14.10	- Other trees (on other wooded land and trees outside the forest)			
14.11	- Other woody biomass (shrubs and bushes) on forest and other wooded land			
14.12	<u>Total above-stump volume and woody biomass</u>			
	<u>Other woody biomass</u>			
14.13	Stumps and roots			

Check: Sum of (A:14.2 to A:14.4) = (A:14.1) Growing stock, Trees on forest, total OK
 Sum of (A:14.6 to A:14.8) = (A:14.5) Growing stock, Trees on forest available for wood supply OK
 Sum of (C:14.2 to C:14.4) = (C:14.1) Woody biomass, Trees on forest, total OK
 Sum of (C:14.1+C:14.10+C:14.11) = (C:14.12) Woody biomass, Total above-stump woody biomass OK
 Sum of (A:14.1+A:14.10) = (A:14.12) Growing stock, Total above-stump volume OK

Data source and quality

Source:

Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFRA-2000 definitions?
Growing stock of trees on forest, total: Yes / No
Growing stock of trees on forest available for wood supply: Yes / No
Woody biomass on forest and other wooded land: Yes / No
 If adjusted, description of adjustment process: Attached / Not attached
 Specifications of known deviations from TBFRA-2000 definitions: Attached / Not attached

Likely range: Taking account of errors due to measurement, sampling, and adjustment, please indicate the range within which the true value is likely to be, for the following parameters:
Growing stock of trees, total: from to thousand m3 o.b.
Growing stock of trees on forest available for wood supply: from to thousand m3 o.b.
Woody biomass, total above-stump: from to thousand m.t. oven-dry

Comments:

**Table 15
Increment**

Purpose: To provide information on the increment, and natural losses as essential elements in the forest balance.

Country:

Reference period:

Ref.		Gross annual increment	Natural losses	Net annual increment
		(1000 m3 a.b.)		
		(A)	(B)	(C)
15.1	On forest, total			
15.2	– Coniferous			
15.3	– Broadleaved			
15.4	– Other			
15.5	– On forest available for wood supply			
15.6	– Coniferous			
15.7	– Broadleaved			
15.8	– Other			
15.9	– On forest not available for wood supply			
15.10	On other wooded land			
15.11	On trees outside the forest			
15.12	TOTAL INCREMENT			

Check: (B) Natural losses + (C) Net annual increment = (A) Gross annual increment OK
Sum of (A:15.2+A:15.3+A:15.4) = (A:15.1) GAI on forest, total OK
Sum of (B:15.2+B:15.3+B:15.4) = (B:15.1) Natural losses on forest, total OK
Sum of (C:15.2+C:15.3+C:15.4) = (C:15.1) NAI on forest, total OK
Sum of (A:15.5+A:15.9+A:15.10+A:15.11) = (A:15.12) Total gross annual increment OK
Sum of (C:15.5+C:15.9+C:15.10+C:15.11) = (C:15.12) Total net annual increment OK
Sum of (A:15.5+A:15.9) = (A:15.1) GAI on forest, total OK
Sum of (C:15.5+C:15.9) = (C:15.1) NAI on forest, total OK
Sum of (A:15.6+A:15.7+A:15.8) = (A:15.5) GAI on forest available for wood supply OK
Sum of (B:15.6+B:15.7+B:15.8) = (B:15.5) Natural losses on forest available for wood supply OK
Sum of (C:15.6+C:15.7+C:15.8) = (C:15.5) NAI on forest available for wood supply OK

Data source and quality

Source:.....
Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFRA-2000 definitions?
Net annual increment on forest available for wood supply: Yes / No
Natural losses on forest available for wood supply: Yes / No
If adjusted, description of adjustment process: Attached / Not attached
Specifications of known deviations from TBFRA-2000 definitions: Attached / Not attached

Likely range: Taking account of errors due to measurement, sampling, and adjustment, please indicate the range within which the true value is likely to be, for the following parameters:
Net annual increment on forest available for wood supply: fromto..... thousand ha
Natural losses on forest available for wood supply: fromto..... thousand ha

Comments:.....

Table 16
Fellings and removals

Purpose: To provide information on the volume of wood being cut and harvested annually as essential elements in the forest balance.

Country:

Reference period:

Ref.		Annual fellings		Annual removals		
		Total	Of which: Fellings of natural losses *	Overbark	Underbark	
		(million m3 o.b.)			(million m3 u.b.)	
		(A)	(B)	(C)	(D)	
16.1	On forest, total					
16.2	- Coniferous					
16.3	- Broadleaved					
16.4	- Other					
16.5	- On forest available for wood supply					
16.6	- Coniferous					
16.7	- For commercial use					
16.8	- other					
16.9	- Broadleaved					
16.10	- For commercial use					
16.11	- other					
16.12	- Other					
16.13	- For commercial use					
16.14	- other					
16.15	- On forest not available for wood supply					
16.16	On other wooded land					
16.17	On trees outside forest					
16.18	Total fellings and removals					

Note: * e.g., trees damaged by insects, pollution, fires, storms, avalanches.

Check: Sum of (A:16.2+A:16.3+A:16.4) = (A:16.1) Forest, total, Annual fellings OK
 Sum of (D:16.2+D:16.3+D:16.4) = (D:16.1) Forest, total, Annual removals, underbark OK
 Sum of (A:16.5+A:16.15+A:16.16+A:16.17) = (A:16.18) Total, Annual fellings OK
 Sum of (D:16.5+D:16.15+D:16.16+D:16.17) = (D:16.18) Total, Annual removals, underbark OK

Data source and quality

Source:

Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFA-2000 definitions?

Annual fellings: Yes / No

Annual removals: Yes / No

If adjusted, description of adjustment process: Attached / Not attached

Specifications of known deviations from TBFA-2000 definitions: Attached / Not attached

Likely range: Taking account of errors due to measurement, sampling, and adjustment, please indicate the range within which the true value is likely to be, for the following parameters:

Annual fellings, total: from to millions m³ o.b.

Annual removals, total: from to millions m³ u.b.

Comments:

Table 17
Change in growing stock on forest available for wood supply

Purpose: To provide information on changes in growing stock, which give important indications of the extent to which the wood potential is being used.

Country:

Reference period "1":

Reference period "2":

Ref.		Reference period "1"	Reference period "2"	Average annual change
		(1000 m ³ over bark)		(1000 m ³ o.b./year)
17.1	Growing stock on "Forest", total			
	<i>of which:</i>			
17.2	Growing stock on "Forest available for wood supply"			
	<i>of which:</i>			
17.3	- Coniferous			
17.4	- Broadleaved			
17.5	- Other (bamboos, etc.)			

Check: Sum of (17.3+17.4+17.5) = (17.2) Reference period "1"
Sum of (17.3+17.4+17.5) = (17.2) Reference period "2"
Sum of (17.3+17.4+17.5) = (17.2) Average annual change

OK
OK
OK

Note: The reference periods should correspond to those in tables 7 and 14.

Comments:

Section IV

Forest Condition (Tables 18 to 20)

Considerable concern has been expressed, especially since the 1980s, about damage to the temperate and boreal forest, from a wide variety of causes, including airborne pollution, fire and game damage. Although international data have been available for some time on forest fires and forest condition (defoliation), in the past this has not been included in the ECE/FAO assessments. It has been decided that, in the interests of presenting a complete picture of the forest resource, information on forest condition, notably fires and defoliation, should also be included in TBFRA-2000. The opportunity has been taken to collect data on a wider range of forest damage, to assess the whole range of damaging agents and their relative importance.

In this field, the agencies responsible for TBFRA-2000 are working closely with those who have been responsible for collecting these data in other fora. In particular, to the extent possible, common definitions and concepts are used, and in one case, data will be collected directly from the international organisation responsible, the Intergovernmental Cooperative Programme on Forests under the Convention on Long-range Transboundary Air Pollution.

Table 18
Damage to forest and other wooded land

Purpose: To assess the condition of the forest and other wooded land, and the extent to which the forest is under threat, to provide information on damage to the forest from different causes.

Country:

Ref.		Most recent 5-year period (19..... to 19.....)	Year in most recent 10-year period in which the heaviest damage occurred	
		Annual average (1000 ha)	Year	Extent of damage (1000 ha)
18.1	Total area of forest and other wooded land with damage by known causes			
18.2	- Primarily damaged by insects and disease			
18.3	- Primarily damaged by wildlife and grazing			
18.4	- Primarily damaged by fire			
18.5	- Primarily damaged from known local pollution sources			
18.6	- Primarily damaged by storm, wind, snow or other identifiable abiotic factors			
18.7	Total area of forest and other wooded land with damage from unidentified causes			

Check: Sum of (18.2 + 18.3 + 18.4 + 18.5 + 18.6) = (18.1)
Total area of forest and other wooded land with damage attributable to known causes.

OK

Note: Where there have been major individual episodes (e.g. a large wind blow, snow storm, etc.) Please provide information on date, extent, etc.

Other comments:.....

Table 19
Forest fire

Purpose: To provide information about the extent of fire damage and the average fire size, as well as about trends over time.

Country:

Ref.	Year	Total number of fires on forest and other wooded land	Area burned		
			Total	Area of forest burned	Area of other wooded land burned
			(1000 ha)		
19.1	1986				
19.2	1987				
19.3	1988				
19.4	1989				
19.5	1990				
19.6	1991				
19.7	1992				
19.8	1993				
19.9	1994				
19.10	1995				
19.11	1996				
19.12	1997				

Note: This table need be completed only by those countries which do not report annual data on fires in the UN-ECE/FAO/Commission of European Communities questionnaire on forest fires (see Timber Bulletin, vol. ECE/TIM/BULL/48/4, (1995), Vol. XLVIII)

Comments:

**Table 20
Forest condition**

Purpose: To provide information on defoliation as an indicator of the extent of tree damage from one or a combination of causes, including air pollution.

Country:

Ref.	Defoliation classes:	All species		Coniferous		Broadleaved	
		0 and 1	2, 3 and 4	0 and 1	2, 3 and 4	0 and 1	2, 3 and 4
		(Percentage of sample trees)					
		(A)	(B)	(C)	(D)	(E)	(F)
20.1	1986						
20.2	1987						
20.3	1988						
20.4	1989						
20.5	1990						
20.6	1991						
20.7	1992						
20.8	1993						
20.9	1994						
20.10	1995						
20.11	1996						
20.12	1997						

Check: A + B = 100
C + D = 100
E + F = 100

Countries not able to provide information on forest condition in this form, i.e. countries not participating in the annual ICP surveys, are invited to describe the situation, provide relevant documentation and contact the secretariat.

Other comments:.....

Defoliation classes (UN/ECE and EU classification)

Class	Needle/leaf loss	Degree of defoliation
0	Up to 10%	none
1	> 10-25%	slight (warning stage)
2	> 25-60%	moderate
3	> 60% < 100%	severe
4	100%	dead

Section V

Protective and socio-economic functions (Tables 21 to 25)

This section of the enquiry covers functions and benefits of the forest and other wooded land, which are widely recognized as extremely important and for which it is difficult to obtain reliable and internationally comparable data. These include soil protection, provision of non-wood goods and services, use by indigenous and tribal peoples, and access to forest, e.g. recreation.

The information to be provided by national correspondents in this section is to a great extent of a descriptive nature (tables 22, 23 and 24) and may well come from sources outside traditional forest inventory agencies. Some quantitative data are requested on changes in areas of forest and other wooded land managed primarily for soil protection (table 21), as well as on quantity and value of the main goods (wood and non-wood products), which have been collected or harvested (table 25).

The information to be provided in this section will probably be based on judgements of national correspondents, or even their estimates instead of hard figures. Still, it is considered useful to provide the best possible data on the importance and role of the forest in this area, provided sources and methods of estimation are clearly described.

Table 21

Protection

Purpose: To provide information on the situation and trends in management of forest and other wooded land for soil protection.

Country:

Previous reference period:

Latest reference period:

Ref.		Previous reference period	Latest reference period	Change
		(1000 ha)		
21.1	Area where forests and other wooded land are managed primarily for soil protection			
21.2	- Forest			
21.3	- Other wooded land			

Check: (21.2) Forest + (21.3) Other wooded land = (21.1) Area where FOWL are managed primarily for soil protection:

Previous reference period	OK
Latest reference period	OK
Change	OK

Comments:.....

Table 22

Indigenous and tribal peoples

Purpose: In addition to ownership by indigenous or tribal peoples (table 5), it is useful to have information about the area of forest and other wooded land used by these peoples and the way they use it.

Country:

Reference period:

22.1 It is understood that not all responding countries have indigenous or tribal peoples. For those that do, please give an actual figure or estimate of the population number meeting the definition used in this enquiry:

22.2 Please give an estimate of the area of forest and other wooded land used by indigenous or tribal peoples for the collection and harvesting of wood and non-wood goods and the provision of services:,000 ha

22.3 If the area used is either more or less than the combined figures in table 5 for forest owned by indigenous or tribal peoples, please give an explanation for the difference:

22.4 What are the main uses of forest and other wooded land by indigenous or tribal peoples? If actual figures or estimates of the quantities or values involved, please provide them:

Other comments:.....

Table 23

Access to, and use of, forest and other wooded land by public

Purpose: With increasing demand for non-wood goods and services, including recreation, it is important to know how much of the forest and other wooded land is legally accessible to the public for these purposes, and the trends in access and uses.

Country:

Reference period:

1. Please give an estimate of the area of forest and other wooded land to which the general public is legally NOT allowed access:

23.1	- Publicly owned forest and other wooded land	.....,000 ha
23.2	- Forest and other wooded land owned by indigenous or tribal peoples	.....,000 ha
23.3	- Privately owned forest and other wooded land	.....,000 ha

2. Has there been a long-term change in the area to which the public has legally had access:

23.4	- Yes*/No* If "YES", what has been the trend in the area to which the public is legally allowed access:	
23.5	- Publicly owned forest and other wooded land	INCREASING*/STABLE*/DECREASING*
23.6	- Forest and other wooded land owned by indigenous or tribal peoples	INCREASING*/STABLE*/DECREASING*
23.7	- Privately owned forest and other wooded land	INCREASING*/STABLE*/DECREASING*

* Delete whichever are not applicable

3. What are the reasons for not allowing public access, and for the long-term change (if any) in the situation?:

.....

.....

.....

.....

4. For a recent year or period, please describe pattern of visitor use of different ownership categories of forest and provide any quantitative data you may have, e.g. give actual figures or estimates of areas of forests with high visitor intensity or the number of visitors/days by the public to forest and other wooded land (year/period:.....):

- State owned	.....
- Other publicly-owned	.....
- Owned by indigenous or tribal peoples	.....
- Owned by individuals	.....
- Owned by forest industries	.....
- Owned by other private institutions	.....

5. Please describe if appropriate, regimes of access to forests for non-wood goods (e.g. mushroom gathering/services/recreation/hunting) when they differ from the general access regime.

.....

.....

.....

Table 24

Goods (wood and non-wood) and selected services provided by forest and other wooded land

Purpose: To provide qualitative and, where available, quantitative information on the importance of the role of forest and other wooded land in providing wood and non-wood goods and certain social, cultural and environmental services.

Country:

Reference period:

Please provide on separate pages short descriptions (not more than 10 lines) of the most important types of goods and services provided by forest and other wooded land, whether demand for them is increasing, stable or decreasing; likewise their supply potential; and so on, under each of the following headings:

Goods (products)

- 24.1 Wood
- 24.2 Products for human consumption: food, beverages, medicinal plants and extracts (e.g. fruits, berries, nuts, honey, game meats, mushrooms, etc.)
- 24.3 Fodder and forage (grazing, range)
- 24.4 Other non-wood goods (products) (e.g. cork, resin, tannins, industrial extracts, wool and skins, hunting trophies, Christmas trees, decorative foliage, mosses and ferns, essential and cosmetic oils, etc.)

Services

- 24.5 Protection (against soil erosion by air or water, avalanches, mud and rock slides, flooding, air pollution, noise, etc.)
- 24.6 Social and economic values (e.g. hunting and fishing, other leisure activities, including recreation, sport and tourism)
- 24.7 Aesthetic, cultural, historical, spiritual and scientific values (including landscape and amenity)

Other comments:.....

Table 25

Quantity and value of goods (wood and non-wood products) collected or harvested from forest and other wooded land

Purpose: To provide quantitative information on the importance of the role of forest and other wooded land in providing wood and non-wood goods

Country:

Reference period:

Please provide on a separate page (s) factual information or estimates on the quantity and/or value of the main goods (products) collected or harvested from forest and other wooded land in a recent year (or annual average of a period of years). The focus of this table is on non-wood products, but information is also requested on the value of wood produced in order to estimate the relative importance of the different products.

Ref.	Goods (products)	Official data (OD) or estimate (EST) mark OD or EST	Quantity harvested/collected		Value
			Unit:	Total	(Please provide data to the extent possible)
25.1	Wood				
25.2					
25.3					
25.4					
25.5					
25.6					
25.7					
25.8					
25.9					
	(add more goods, if necessary)				

Note: Please provide consistency in the list of major goods (products) with table 24.

Remarks: Please indicate for each product what the nature of the value estimate is: market price, or measured at roadside or at retail price, income to forest owners, etc., and how this information was obtained.

Comments:.....

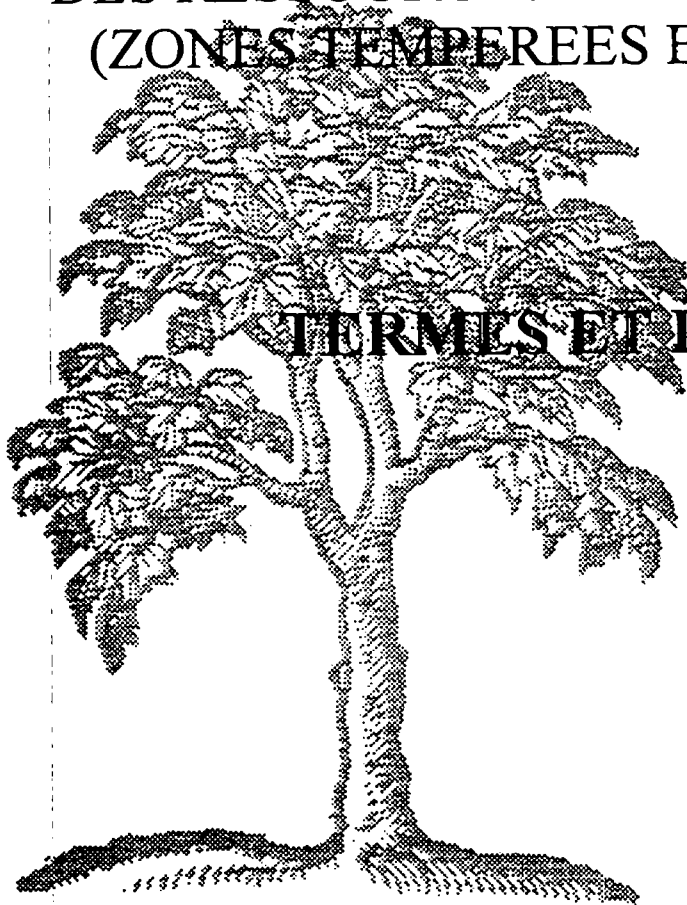


Commission économique des
Nations Unies pour l'Europe



Organisation des Nations Unies
pour l'alimentation et l'agriculture

ANALYSE ONU-CEE/FAO
DES RESSOURCES FORESTIERES DE L'AN 2000
(ZONES TEMPEREES ET ZONES BOREALES)



TERMES ET DEFINITIONS



Nations Unies
New York et Genève, juillet 1997

**Termes et définitions à utiliser dans l'Analyse CEE-ONU/FAO
des ressources forestières de l'an 2000
(zones tempérées et zones boréales)**

No	Termes	Définitions	Réf. (Tableaux)
1.	Biomasse ligneuse au-dessus de la souche	Masse de la partie ligneuse (tronc, écorce, branches, rameaux) des arbres, vivants ou morts, et des arbustes et broussailles, à l'exclusion des souches et des racines.	14
2.	Abattages annuels	Volume annuel moyen de tous les arbres sur pied, vivants ou morts, mesurés sur écorce à partir d'un diamètre de 0 cm (à hauteur d'homme), qui sont abattus au cours de la période de référence, y compris le volume d'arbres ou de parties d'arbre qui ne sont pas enlevés de la forêt, des autres terres boisées ou du chantier d'abattage. Sont compris : les restes d'opérations d'éclaircie et de nettoyage, sylvicoles et prémarchandes, laissés dans la forêt, ainsi que les pertes naturelles compensées (abattage).	16
3.	Quantités enlevées annuelles	Moyenne annuelle des quantités abattues qui sont enlevées de la forêt, des autres terres boisées ou du chantier d'abattage au cours de la période de référence. Sont comprises : les quantités enlevées au cours de la période d'analyse d'arbres abattus au cours d'une période antérieure et l'enlèvement d'arbres détruits ou abîmés par des phénomènes naturels (pertes naturelles), soit incendies, tempêtes, attaques d'insectes, maladies, etc.	16
4.	Feuillus	Tous les arbres classés en botanique sous le nom d'angiospermes. Parfois appelés non-conifères.	3, 14, 15, 16, 17, 20
5.	Résineux	Tous les arbres classés en botanique sous le nom de gymnospermes. Parfois appelés conifères.	3, 14, 15, 16, 17, 20
6.	Taillis et taillis sous futaies	Forêts composées de rejets de souche et drageons avec ou sans arbres isolés qui peuvent être issus de graines (sous futaies).	4
7.	Rejets de taillis	Repousse des taillis après coupe.	11
8.	Dégâts forestiers	Perturbation de l'état de la forêt qui peut être causée par des agents biotiques ou abiotiques et peut entraîner la mort ou une perte sensible de vitalité, de productivité ou de valeur des arbres et des autres éléments constitutifs de l'écosystème forestier.	18

No	Termes	Définitions	Réf. (Tableaux)																		
9.	Catégories de défoliation	<p>Catégories de défoliation évaluée de visu, établies par le Programme international concerté (Forêts PIC) de l'Organe exécutif de la Convention sur la pollution atmosphérique transfrontière à longue distance.</p> <table border="0"> <tr> <td>Catégorie</td> <td>Perte d'aiguilles/de feuilles</td> <td>Degré de défoliation</td> </tr> <tr> <td>0</td> <td>jusqu'à 10 %</td> <td>aucun</td> </tr> <tr> <td>1</td> <td>> 10 à 25 %</td> <td>léger (état d'alerte)</td> </tr> <tr> <td>2</td> <td>> 25 à 60 %</td> <td>modéré</td> </tr> <tr> <td>3</td> <td>> 60 à < 100 %</td> <td>grave</td> </tr> <tr> <td>4</td> <td>100 %</td> <td>arbres morts</td> </tr> </table> <p>*/ Les méthodes d'évaluation et d'autres notions sont présentées dans la documentation du PIC.</p>	Catégorie	Perte d'aiguilles/de feuilles	Degré de défoliation	0	jusqu'à 10 %	aucun	1	> 10 à 25 %	léger (état d'alerte)	2	> 25 à 60 %	modéré	3	> 60 à < 100 %	grave	4	100 %	arbres morts	20
Catégorie	Perte d'aiguilles/de feuilles	Degré de défoliation																			
0	jusqu'à 10 %	aucun																			
1	> 10 à 25 %	léger (état d'alerte)																			
2	> 25 à 60 %	modéré																			
3	> 60 à < 100 %	grave																			
4	100 %	arbres morts																			
10.	Essences introduites domestiquées	Essences plantées hors de leur zone, région ou biotope naturel, qui se sont assez bien acclimatées après au moins une génération de croissance satisfaisante, qui ne se sont pas révélées sujettes à des attaques massives d'insectes ou de champignons (ou à d'autres maladies) et ont été capables de se régénérer elles-mêmes naturellement.	9																		
11.	Espèces menacées d'extinction	Espèces classées de façon objective (livre rouge national) dans les catégories de l'UICN "gravement menacé d'extinction" et "menacé d'extinction". Une espèce est dite gravement menacée d'extinction lorsqu'elle est exposée à un risque d'extinction à l'état sauvage extrêmement élevé et à court terme. Elle est dite "menacée d'extinction" lorsque sans être gravement menacée d'extinction, elle est néanmoins exposée à un risque d'extinction à l'état sauvage très élevé et à court terme.	10																		
12.	Espèces endémiques	Une espèce est dite endémique lorsqu'on la trouve seulement dans une zone géographique strictement limitée, c'est-à-dire dans une région ou un périmètre bien défini.	10																		
13.	Forêt équienne (futaie)	Futaie dont la part prédominante des arbres appartient à la même classe d'âge, d'où généralement une forêt à un étage.	13																		
14.	Forêts disponibles pour la production de bois	<p>Forêts dans lesquelles des restrictions juridiques ou économiques ou des restrictions écologiques particulières n'ont pas d'incidence notable sur la production de bois.</p> <p>Elles comprennent : les zones où, malgré l'absence de telles restrictions, il n'y a pas d'abattages, par exemple les zones faisant l'objet de plans d'utilisation ou d'intentions à long terme.</p>	3, 4, 5, 7, 14, 15, 16																		

No	Termes	Définitions	Réf. (Tableaux)
15.	Forêts	<p>Terres représentant un couvert forestier (ou peuplement équivalent) de plus de 10 % et une superficie supérieure à 0,5 ha. Les arbres doivent pouvoir atteindre une hauteur abattable minimale de 5 m. Ces forêts peuvent comprendre soit des formations forestières denses dont les divers étages et le sous-bois couvrent une forte proportion du sol, soit des formations forestières claires avec une strate herbacée continue dans lesquelles les cimes couvrent plus de 10 % de la superficie. Sont également compris dans les forêts les jeunes peuplements naturels et toutes les plantations créées à des fins forestières, mais dont les cimes ne couvrent pas encore 10 % de la superficie ou dont les arbres sont encore inférieurs à 5 m, tout comme les zones qui font normalement partie de la région forestière et qui sont temporairement déboisées par le fait de l'intervention de l'homme ou de causes naturelles, mais qui sont appelées à redevenir des forêts.</p> <p>Ces terres comprennent : les pépinières et vergers grainiers qui font partie intégrante de la forêt; les routes forestières, zones coupées à blanc, pare-feu et autres petites clairières; les forêts des parcs nationaux, réserves naturelles et autres zones protégées, par exemple celles qui présentent un intérêt particulier sur les plans écologique, scientifique, historique, culturel ou spirituel; les brise-vent et plantations-abris couvrant plus de 0,5 ha et ayant une largeur supérieure à 20 m. Les plantations d'hévéas et les peuplements de chênes-lièges sont également compris.</p> <p>Elles ne comprennent pas : les terres essentiellement utilisées à des fins agricoles.</p>	1, 2, 3, 5, 7, 8, 15
16.	Incendie de forêt	<p>Incendie qui éclate et s'étend dans les forêts ou sur d'autres terres boisées, ou qui éclate sur d'autres terres et s'étend aux forêts et autres terres boisées.</p> <p>N'est pas compris : le brûlis prescrit ou dirigé, généralement réalisé dans le but de réduire ou d'éliminer la quantité de matière combustible accumulée sur le sol.</p>	18, 19
17.	Forêts appartenant à des industries forestières	Forêts et autres terres boisées appartenant à des entreprises ou industries privées pratiquant la transformation du bois.	5, 23

No	Termes	Définitions	Réf. (Tableaux)
18.	Forêts non disponibles pour la production de bois	<p>Forêts dans lesquelles des restrictions juridiques ou économiques ou des restrictions écologiques particulières empêchent toute production importante de bois.</p> <p>Elles comprennent : a) Les forêts dans lesquelles des restrictions juridiques ou des restrictions découlant d'autres décisions politiques excluent totalement ou limitent considérablement la production de bois, notamment pour des raisons écologiques et de préservation de la biodiversité (forêts de protection, parcs nationaux, réserves naturelles et autres zones protégées telles que celles présentant un intérêt particulier sur les plans écologique, scientifique, historique, culturel ou spirituel);</p> <p>b) Les forêts dont la productivité matérielle ou la qualité du bois est trop faible ou les coûts d'abattage et de transport sont trop élevés pour justifier des coupes, hormis occasionnellement pour consommation propre.</p>	3, 4, 5, 7, 16
19.	Forêts et autres terres boisées ayant subi des dégâts dus à des causes non identifiées	Forêts et autres terres boisées ayant subi des dégâts dont l'origine est inconnue ou peut être la combinaison de divers agents.	18
20.	Forêts et autres terres boisées non perturbées par l'homme	Forêts et autres terres boisées qui présentent la dynamique d'une forêt naturelle - composition naturelle des arbres, présence de bois mort, composition naturelle par âge, processus de régénération naturels, etc. - dont la superficie est suffisamment importante pour leur permettre de conserver leurs caractéristiques naturelles et dans lesquelles il n'y a pas eu d'intervention humaine importante connue, ou bien où la dernière intervention humaine notable remonte à une époque suffisamment lointaine pour que la composition et les processus naturels des essences aient eu le temps de se reconstituer.	2, 3, 7
21.	Accroissement annuel brut	<p>Volume annuel moyen de l'accroissement, au cours de la période d'analyse, de tous les arbres mesurés à partir d'un diamètre à hauteur d'homme de 0 cm.</p> <p>Est compris : l'accroissement des arbres qui sont abattus ou qui meurent pendant la période d'analyse.</p>	15
22.	Matériel sur pied	Partie vivante du volume sur pied.	14, 17
23.	Futaies	<p>Forêts normalement composées d'arbres issus de graines, mais pouvant aussi comprendre des arbres obtenus par reproduction végétative, par exemple les peupliers.</p> <p>Elles comprennent : les peuplements en voie de transformation en futaies.</p>	4

No	Termes	Définitions	Réf. (Tableaux)
24.	Domaine forestier	<p>Une ou plusieurs parcelles de forêts ou autres terres boisées qui constituent une seule unité du point de vue de l'utilisation ou de la gestion. Pour les forêts et autres terres boisées appartenant à l'Etat, un domaine peut être défini comme étant la zone constituant une unité de gestion principale administrée par un haut fonctionnaire, par exemple un forestier régional. Pour les forêts et autres terres boisées publiques, autres que celles appartenant à l'Etat, ou les grandes forêts privées (industries forestières), un domaine peut être composé de plusieurs propriétés distinctes qui sont toutefois gérées selon une stratégie d'entreprise unique. Mises à part les forêts et terres boisées appartenant à l'Etat, une exploitation peut avoir un ou plusieurs propriétaires.</p>	6
25.	Essence locale	<p>Essence qui s'est développée dans une même zone ou région ou dans le même biotope, où le peuplement en croissance est adapté aux conditions écologiques qui prédominaient au moment de sa création. On peut aussi parler d'essence indigène ou autochtone.</p>	9, 12
26.	Populations autochtones ou tribales	<p>Les populations autochtones ou tribales de pays indépendants sont définies comme étant des populations :</p> <p>1) qui sont considérées comme autochtones parce qu'elles descendent de celles qui habitaient le pays ou une région géographique à laquelle le pays appartient, au moment de la conquête ou de la colonisation ou de l'établissement des frontières actuelles de l'Etat, et qui, abstraction faite de leur statut juridique, conservent en partie ou en totalité leurs institutions sociales, économiques, culturelles et politiques;</p> <p>2) qui sont tribales parce que leur situation sociale, culturelle et économique les distingue des autres sections de la communauté nationale et que leur mode de vie est réglé entièrement ou en partie par leurs coutumes ou traditions ou par des lois et règlements spéciaux.</p> <p>Pour les deux catégories de populations (1 et 2), le fait de se considérer elles-mêmes comme autochtones ou tribales doit être pris comme le critère de définition fondamental. (Source : Convention No 169 de l'OIT relative aux populations autochtones et tribales.)</p>	5, 22, 23
27.	Eaux intérieures	<p>Superficie occupée par les principaux cours d'eau, lacs et réservoirs.</p>	1

No	Termes	Définitions	Réf. (Tableaux)
28.	<p>Catégories de zones protégées de l'UICN</p> <p>I. Réserve naturelle intégrale/zone de nature sauvage</p> <p>II. Parc national</p> <p>III. Monument naturel</p> <p>IV. Aire de gestion des habitats/espèces</p>	<p>Le guide pour l'interprétation de ces définitions peut être obtenu auprès de l'UICN. (Voir note de bas de page des définitions du tableau 10 du questionnaire.)</p> <p>Zone protégée gérée principalement à des fins scientifiques ou pour la protection de son état sauvage. Ces zones présentent quelques écosystèmes exceptionnels, des caractéristiques et/ou des espèces de flore et de faune d'importance scientifique nationale, ou bien sont représentatives de régions naturelles particulières. Elles contiennent souvent des écosystèmes ou formes de vie fragiles, des zones d'importance biologique ou présentant une diversité géologique, ou des zones revêtant une importance particulière pour la préservation des ressources génétiques. L'accès du public est généralement interdit. Les processus naturels peuvent s'y dérouler à l'abri de toute ingérence directe de l'homme, du tourisme et des loisirs. Les processus écologiques peuvent comprendre des phénomènes naturels qui modifient le système écologique ou les caractéristiques physiographiques (incendies naturels, évolution naturelle, attaques d'insectes ou poussées de maladies, tempêtes, séismes, etc.) mais excluent nécessairement les perturbations dues à l'homme.</p> <p>Zone protégée servant principalement à la protection d'écosystèmes et aux loisirs. Les parcs nationaux sont des zones relativement étendues qui comprennent des échantillons représentatifs des principales régions naturelles, de leurs caractéristiques et paysages où les espèces végétales et animales, les sites géomorphologiques et les habitats offrent un intérêt particulier sur les plans scientifique, éducatif et récréatif. Ces zones sont dirigées et aménagées pour permettre des activités récréatives et éducatives contrôlées. Leur utilisation par les visiteurs est réglementée de façon à assurer le maintien de leur état naturel ou semi-naturel.</p> <p>Zone protégée servant principalement à assurer la préservation de certaines caractéristiques naturelles. Ces zones comprennent normalement une ou plusieurs caractéristiques naturelles d'intérêt national prépondérant, protégées en raison de leur caractère unique ou de leur rareté. Leur étendue ne revêt pas une grande importance. Elles sont à diriger de manière à limiter dans une certaine mesure les perturbations dues à l'homme, mais peuvent avoir un intérêt sur le plan des loisirs et du tourisme.</p> <p>Zone protégée gérée principalement à des fins de préservation. Ces zones peuvent comprendre des aires de nidification d'espèces d'oiseaux vivant en colonies, des marais, des lacs, des estuaires, des forêts et des prairies servant d'habitats, des zones de frai et des zones d'algues servant à l'alimentation de la faune aquatique. La production de ressources renouvelables à récolter peut jouer un rôle secondaire dans leur gestion. Dans certains cas, une perturbation des habitats peut être nécessaire (fauchage, pacage de moutons ou de bétail, etc.).</p>	<p>7, 8</p> <p>7, 8</p> <p>7, 8</p> <p>7, 8</p>

No	Termes	Définitions	Réf. (Tableaux)
	<p>V. Paysage terrestre/marin protégé</p> <p>VI. Aire protégée de ressources gérées</p>	<p>Zone protégée principalement aux fins de la préservation d'un paysage terrestre/marin et des loisirs.</p> <p>La diversité des zones entrant dans cette catégorie est considérable. On y trouve en effet celles dont les paysages présentent un intérêt esthétique particulier résultant de l'interaction de l'homme et de la terre ou de l'eau, les pratiques traditionnelles liées à l'agriculture, au pacage et à la pêche étant prédominantes; ainsi que les zones constituées essentiellement de zones naturelles (côtes, rivages et berges, terrains vallonnés ou montagneux, etc.) utilisées intensément à des fins de loisirs ou de tourisme.</p> <p>Zone protégée dirigée pour assurer l'utilisation durable des écosystèmes naturels.</p> <p>Il s'agit normalement de zones étendues, relativement isolées et inhabitées, difficiles d'accès, et de régions à population relativement clairsemée, mais qui sont l'objet de fortes pressions en vue de leur colonisation ou d'une plus forte utilisation.</p>	<p>7, 8</p> <p>7, 8</p>
29.	Forêts appartenant à des particuliers	<p>Forêts et autres terres boisées appartenant à des particuliers ou à des familles, y compris les personnes qui se sont constituées en sociétés.</p> <p>Elles comprennent : les particuliers et les familles qui combinent activités forestières et activités agricoles (foresterie paysanne), ceux et celles qui vivent sur leur exploitation forestière ou à proximité et ceux et celles qui vivent ailleurs (propriétaires absentéistes).</p>	5, 23
30.	Essences introduites	<p>Essences d'arbre qui vivent hors de leur zone ou région de végétation naturelle. Egalement appelées essences non locales.</p> <p>Sont compris : les hybrides</p>	9
31.	Espèces envahissantes	<p>Espèces de faune et de flore d'origine non locale qui se sont installées ou ont été introduites dans une zone donnée et se sont répandues dans des conditions naturelles à une échelle excessive, c'est-à-dire au point de repousser ou de remplacer les espèces qui occupaient précédemment cette zone.</p>	10
32.	Superficie des terres	<p>Superficie totale, à l'exclusion des terres couvertes par les eaux intérieures.</p>	1
33.	Droit légal d'accès	<p>Forêts et autres terres boisées, appartenant à des entités publiques ou à des tiers, que le public a légalement le droit de visiter. Certaines activités des visiteurs peuvent cependant être interdites ou limitées.</p>	23
34.	Origine locale	<p>Matériel génétique provenant d'un lieu et d'une source considérés comme locaux eu égard à la zone où il a été planté.</p> <p>N'est pas compris : le matériel provenant de vergers grainiers.</p>	12

No	Termes	Définitions	Réf. (Tableaux)
35.	Forêts et autres terres boisées gérées	Forêts et autres terres boisées qui sont gérées selon un plan bien défini ou un plan improvisé appliqué régulièrement pendant une période assez longue (au moins cinq ans). Les opérations de gestion comprennent les tâches à accomplir dans les divers peuplements (parcelles) au cours de la période en question.	5
36.	Forêts mélangées et autres terres boisées	Forêts et autres terres boisées où ni les résineux, ni les feuillus, ni les palmiers, ni les bambous, etc., ne représentent plus de 75 % des cimes.	3
37.	Colonisation naturelle de terres non forestières	Colonisation progressive de terres non forestières avec des arbres forestiers par évolution naturelle sans intervention humaine. La colonisation naturelle survient fréquemment après la cessation d'une activité (agriculture ou pacage) sur une terre non forestière.	11
38.	Reconversion naturelle d'autres terres boisées en forêts	Reconversion d'autres terres boisées en forêts par processus naturels. La reconversion peut se produire sans intervention intentionnelle de l'homme, mais peut être aidée par lui par diverses mesures (cessation du pacage pour favoriser la régénération des arbres, scarification du sol, la surexploitation, etc.).	11
39.	Pertes naturelles	Pertes annuelles moyennes, au cours de la période, d'arbres à partir d'un diamètre à hauteur d'homme de 0 cm, dues à la mortalité provoquée par d'autres causes que l'abattage par l'homme, par exemple la mortalité naturelle, les maladies, les attaques d'insectes, les incendies, les tempêtes et d'autres dégâts physiques.	16
40.	Régénération naturelle	Rétablissement d'un peuplement forestier par des moyens naturels, c'est-à-dire par ensemencement naturel ou reproduction végétative. Cette régénération peut être favorisée par l'homme, par exemple par scarification ou clôturage contre les animaux (domestiques ou sauvages) qui paissent.	11
41.	Régénération naturelle améliorée par plantation	Régénération naturelle accompagnée de plantation ou ensemencement artificiel soit pour assurer un bon reboisement en essences naturellement régénérées, soit pour accroître la diversité des essences.	11
42.	Accroissement annuel net	Volume annuel moyen de l'accroissement brut moins les pertes naturelles, au cours de la période, de tous les arbres à partir d'un diamètre à hauteur d'homme de 0 cm.	15
43.	Origine non locale	Matériel génétique provenant d'un lieu et d'une source non considérés comme locaux eu égard à la zone où il a été planté. Comprend : le matériel provenant de vergers grainiers.	12
44.	Autres terres	Terres classées ni comme forêts ni comme autres terres boisées au sens du questionnaire.	1

No	Termes	Définitions	Réf. (Tableaux)
45.	Forêts appartenant à d'autres institutions privées	Forêts et autres terres boisées appartenant à des sociétés, coopératives ou institutions privées (établissements religieux ou éducatifs, caisses de retraite ou fonds d'investissement, sociétés de protection de la nature, etc.).	5, 23
46.	Forêts appartenant à d'autres institutions publiques	Forêts et autres terres boisées appartenant à des villes, municipalités, villages ou communes. Elles comprennent : toutes les forêts et autres terres boisées publiques non mentionnées comme appartenant à l'Etat.	5, 23
47.	Autres terres boisées	Terres portant soit un couvert forestier (ou peuplement équivalent) composé de 5 à 10 % d'arbres capables d'atteindre une hauteur abattable de 5 m, soit un couvert forestier (ou peuplement équivalent) composé de plus de 10 % d'arbres incapables d'atteindre une hauteur abattable de 5 m (arbres nains ou rabougris) et un couvert d'arbustes et de broussailles. Elles ne comprennent pas : les zones comprenant les arbres, arbustes et broussailles susmentionnés, mais couvrant moins de 0,5 ha et ayant une largeur inférieure à 20 m, qui sont classées dans les "autres terres"; les terres utilisées essentiellement à des fins agricoles.	1, 2, 3, 5, 15, 16
48.	Plantations	Peuplements créés par plantation ou ensemencement au cours du processus de boisement ou de reboisement. Il s'agit : - soit d'essences introduites (tous les peuplements plantés), - soit de peuplements d'essences locales exploités de façon intensive qui répondent aux critères suivants : une ou deux essences par plantation, forêt équienne, espacement régulier. Ils ne comprennent pas : les peuplements qui ont été créés en tant que plantations mais qui n'ont pas fait l'objet d'une exploitation intensive pendant une période assez longue. Ces peuplements doivent être considérés comme semi-naturels.	2, 3, 7
49.	Plantation et ensemencement	Création d'un peuplement (plantation) ou rétablissement d'un peuplement par des moyens artificiels (plantation de jeunes plants ou épandage de semis). Le matériel utilisé peut être d'origine locale ou extérieure. La plantation et l'ensemencement peuvent se réaliser en forêt, sur d'autres terres boisées ou sur d'autres terres.	11
50.	Forêts composées essentiellement de bambous, palmiers, etc.	Forêts et autres terres boisées dans lesquelles les cimes des essences autres que les résineux et les feuillus (plantes arborescentes appartenant aux familles du bambou, du palmier, des fougères, etc.) couvrent plus de 75 % de la superficie.	3
51.	Forêts composées essentiellement de feuillus	Forêts et autres terres boisées dans lesquelles les cimes des feuillus couvrent plus de 75 % de la superficie.	3
52.	Forêts essentiellement composées de résineux	Forêts et autres terres boisées dans lesquelles les cimes des résineux couvrent plus de 75 % de la superficie.	3

No	Termes	Définitions	Réf. (Tableaux)
53.	Dégâts dus essentiellement au feu	Forêts et autres terres boisées dont la végétation, y compris les arbres, a été entièrement ou dans une large mesure détruite par le feu.	18
54.	Dégâts dus essentiellement aux insectes et aux maladies	Forêts et autres terres boisées dans lesquelles les attaques d'insectes ou les maladies sont identifiées comme étant la cause première des dégâts.	18
55.	Dégâts dus essentiellement à des sources de pollution connues	Forêts et autres terres boisées dans lesquelles les dégâts sont fort probablement imputables à des dépôts de polluants provenant de sources locales identifiées.	18
56.	Dégâts dus essentiellement aux tempêtes, au vent, à la neige ou à d'autres facteurs abiotiques identifiables	Forêts et autres terres boisées dans lesquelles des arbres ont été abattus ou endommagés par la tempête, le vent, la neige ou d'autres facteurs abiotiques (avalanches, glissements de terrain, inondations, etc.).	18
57.	Dégâts dus essentiellement à la faune et au pacage	Forêts et autres terres boisées dans lesquelles les dégâts sont dus à la faune ou au pacage d'animaux domestiques. Ces dégâts comprennent : le pacage et le broutage de jeunes plantes, qui empêchent ou retardent la création ou la régénération du peuplement.	18
58.	Forêts privées	Forêts et autres terres boisées appartenant à des particuliers, des familles, des coopératives ou des sociétés exerçant des activités agricoles ou autres ainsi que des activités forestières; à des industries forestières privées; à des sociétés et autres institutions privées (établissements religieux ou éducatifs, caisses de retraite, fonds d'investissement, sociétés de protection de la nature, etc.).	5, 6, 23
59.	Protection	Forêts et autres terres boisées servant à protéger le sol contre l'érosion par l'eau ou le vent, à prévenir la désertification, à limiter les risques d'avalanches, d'éboulements de rochers et de coulées de boue, ainsi qu'à préserver, protéger et régler la quantité et la qualité de l'approvisionnement en eau, y compris la prévention des inondations. Est comprise : la protection contre la pollution atmosphérique et le bruit.	21
60.	Forêts publiques	Forêts et autres terres boisées appartenant à l'Etat ou à d'autres entités publiques.	5, 6, 23
61.	Période de référence	Année ou années où a été réalisé un inventaire national des ressources forestières ou appliquée une autre méthode de collecte des données indiquées dans l'analyse des ressources forestières.	Application générale

No	Termes	Définitions	Réf. (Tableaux)
62.	Régénération	Rétablissement d'un peuplement forestier par des moyens naturels ou artificiels à la suite de la suppression du peuplement précédent par abattage ou de sa disparition due à des causes naturelles (tempêtes ou incendies).	11
63.	Quantités enlevées marchandes	<p>Quantités enlevées annuelles qui produisent des recettes pour le propriétaire de la forêt ou d'autres terres boisées ou d'arbres hors forêt.</p> <p>Sont comprises : les quantités enlevées de bois destiné à la consommation domestique après transformation, par exemple en sciages, piquets ou matériel de construction.</p> <p>Ne sont pas comprises : les quantités enlevées pour consommation propre (bois de feu, etc.).</p>	16
64.	Révolution	Nombre d'années prévu entre la création ou la régénération d'un peuplement et son abattage à un stade de maturité fixé.	11, 13
65.	Forêts et autres terres boisées semi-naturelles	Forêts et autres terres boisées qui n'entrent ni dans la catégorie "forêts et autres terres boisées non perturbées par l'homme" ni dans la catégorie "plantations".	2, 3, 7
66.	Arbustes et broussaille	Plantes ligneuses pérennes, d'une hauteur généralement comprise entre 0,5 m et 5 m, souvent dépourvues de tige et de houppier caractérisés.	14
67.	Espèces exposées à des risques	<p>Espèces figurant dans les catégories de l'UICN "vulnérable", "dépendant de mesures de conservation" et "quasi menacé".</p> <p>Une espèce est dite vulnérable lorsque, sans être gravement menacée d'extinction ni menacée d'extinction (voir définition), elle est néanmoins exposée à un risque d'extinction à l'état sauvage élevé et à moyen terme. Une espèce dépendant de mesures de conservation est une espèce qui fait l'objet d'un programme de conservation continu, spécifique à l'espèce ou à son habitat, dont la cessation entraînerait le passage de l'espèce dans l'une des catégories menacées dans un délai de cinq ans. Les espèces quasi menacées sont celles qui ne répondent pas aux critères de la catégorie "dépendant de mesures de conservation" mais se rapprochent de celles de la catégorie "vulnérable".</p>	10
68.	Espèces présentes dans les forêts et autres terres boisées	Espèces de faune et de flore qui passent au moins une partie de leur vie quotidienne sur des terres forestières ou d'autres terres boisées, pour s'y abriter, s'y nourrir, y nidifier et s'y reproduire.	9, 10
69.	Volume sur pied	<p>Volume, au-dessus de la souche, des arbres vivants ou morts, à partir d'un diamètre à hauteur d'homme de 0 cm sur écorce.</p> <p>Sont compris : les pointes des troncs et grosses branches; les arbres morts couchés à terre qui peuvent encore être utilisés pour la transformation en fibres ou comme combustible.</p> <p>Ne sont pas compris : les petites branches, les rameaux et le feuillage.</p>	14
70.	Forêts d'Etat	Forêts et autres terres boisées appartenant à la nation, aux Etats, aux provinces ou à des régies d'Etat ou à la Couronne.	5, 23

No	Termes	Définitions	Réf. (Tableaux)
71.	Souches et racines	Parties du volume entier de l'arbre, qui excluent le volume de la biomasse ligneuse au-dessus de la souche. La limite supérieure de la souche est considérée comme étant celle à laquelle l'arbre serait coupé dans les conditions d'abattage normales du pays ou de la région. Ne sont pas comprises : les petites racines.	14
72.	Superficie totale	Superficie totale du pays, y compris celle des eaux intérieures. Elle ne comprend pas : les eaux territoriales extérieures.	1
73.	Arbre	Elément ligneux pérenne comportant un tronc principal unique ou, s'agissant de taillis, comprenant plusieurs tiges, un houppier plus ou moins caractérisé. Sont compris : les bambous, palmiers et autres plantes ligneuses correspondant à la description ci-dessus.	9, 10, 14, 15
74.	Arbres hors forêt	Arbres se trouvant sur des terres qui ne sont définies ni comme forêts ni comme autres terres boisées. Ils comprennent : les arbres situés sur des terres qui correspondent à la description des forêts et autres terres boisées, sauf que leur superficie est inférieure à 0,5 ha et leur largeur à 20 m; les arbres dispersés dans des prairies et pâturages permanents; les arbres faisant l'objet d'une culture permanente (vergers, cocoteraies, etc.); les arbres situés dans des parcs et jardins, autour de bâtiments, dans des haies ou disposés en ligne le long de rues, routes, voies ferrées, cours d'eau et canaux; les arbres faisant partie de plantations-abris et de brise-vent d'une largeur inférieure à 20 m et d'une superficie inférieure à 0,5 ha.	14, 15, 16
75.	En cours de régénération	Forêt en cours de préparation aux fins de régénération ou en voie de reboisement par plantation, ensemencement ou régénération naturelle après disparition totale ou partielle du peuplement précédent par suite d'abattages, d'incendies ou de tempêtes. Elle comprend : les peuplements de semenciers.	13
76.	Forêt inéquienne (futaie)	Futaie composée d'arbres de différents âges. Il est généralement impossible de distinguer des étages.	13
77.	Biomasse ligneuse	Masse de la partie ligneuse (bois, écorce, branches, rameaux, souches et racines) des arbres, vivants ou morts, et des arbustes et broussailles à partir d'un diamètre à hauteur d'homme de 0 cm. Elle comprend : la biomasse ligneuse au-dessus de la souche, la souche et les racines. Elle ne comprend pas : le feuillage.	14

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