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Supplementary Material

Appendix 1

Tab. SM1 - Forest management and logging practices in the tropics.

Description	Uncontrolled or Anarchic Logging	Reduced-Impact Logging (RIL)	Reduced-Impact Logging plus silvicultural treatments (RIL+)
History	Intensified about 50 years ago (Nicholson 1958, Putz et al. 2000)	Early 1980s (Ward & Kanowski 1985)	Early 2000s (Peña-Claros et al. 2008)
Common practices	Unplanned logging with untrained crews, concentrated felling	Properly planned, trained, and supervised logging with site preparation, directional felling, use proper equipment	Additional to RIL, girdling or arboriciding unwanted trees, vine cutting
Logging damage to residual stands	48.4–56.0% (see Sasaki & Putz 2009)	28.0–30.5% (see Sasaki & Putz 2009)	-
Wood waste proportional to felling intensity	20.0–46.2% (see Sasaki & Putz 2009)	0–26.2% (see Sasaki & Putz 2009)	-
Growth rates	Rapidly declining (Asner et al. 2005, 2006)	Leading to sustained yield (Palmer & Synnott 1992)	Growth rates of future crop trees is 50–60% higher compared to that under RIL (Peña-Claros et al. 2008; Villegas et al. 2009)
Carbon emission reductions and International agreements	More than 100 $Mgha^{-1}$ (Putz et al. 2008)	Reduced by at least 30% (Putz et al 2008)	
	None	Possibly used under the REDD+ agreements	Possibly used under the REDD agreements

Appendix 2 - Carbon Stock Calculation

Mean annual increments reported by Wadsworth & Zweede (2006) in $m^3\ ha^{-1}\ yr^{-1}$ (SV) were converted into total tree carbon stocks in MgC (CS) using Brown's (1997) equation:

$$CS = CT \cdot WD \cdot SV \cdot BEF$$

where CT is carbon content, CT=0.5; WD is wood density, WD=0.57; BEF is the biomass expansion factor of 1.74 SV = 0.56 $m^3\ ha^{-1}\ yr^{-1}$ for RIL, and SV = 0.67 $m^3\ ha^{-1}\ yr^{-1}$ for RIL+ (Wadsworth & Zweede 2006).

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Appendix 3

Tab. SM2 - Legal lower tree-size limits (breast-height diameter) for some commercial tree species harvested from tropical forests.

Common Name	Scientific Name	Family	Diameter Limit (cm)
Cambodia (Kim Phat 1997)			
Khwaav	*Adina cordifolia*	Rubiaceae	45
Beng	*Afzelia xylocarpa*	Leguminosae	45
Phkay Prik	*Afzelie bijuga*	Leguminosae	45
Bang kao	*Aglaia gigantia*	Meliaceae	35
Chreis	*Albizzia lebbek*	Mimosaceae	45
Kraay Sa	*Albizzia thorelli*	Mimosaceae	30
Phdeak	*Anisoptera glabra*	Dipterocarpaceae	45
Chan Krisnaa	*Aquilaria crasna*	Thymeleaceae	35
Khnol Prey	*Artocarpus altilus*	Moraceae	45
Sam Por	*Artocarpus sampor*	Moraceae	35
Pha Ong	*Callophyllum calaba*	Guttiferae	30
Khtiing	*Calophyllum dryobalanoides*	Guttiferae	30
Tra Maeng	*Carallia lucida*	Rhizophoraceae	45
Haisaan/Chansor	*Cassia garretiana*	Leguminosae	45
Ang kanh	*Cassia siamealpinées*	Leguminosae	45
Same	*Ceriops roxburghiana*	Rhizophoraceae	45
Woi young	*Chukrasia tabularis*	Meliaceae	60
Cheik Tum	*Cinnamonmum litsaefolium*	Lauraceae	30
Lo Ngeang	*Cratoxylon prunifolium*	Guttiferae	30
Sdey	*Crudia chrysantha*	Leguminosae	30
Trabb Tum	*Crypteronia paniculata*	Crypteroniaceae	30
Srol Krahorm	*Dacrydium elatum*	Podocarpaceae	45
Neang Nuon	*Dalbergia bariensis*	Leguminosae	45
Kra Nhuung	*Dalbergia cochinchinensis*	Leguminosae	45
Cheung Chaab	*Dasymachalon lamentaceum*	Annonaceae	45
Kra Lanh	*Dialium cochinchinensis*	Leguminosae	45
Angkot Khmao	*Diospyros bejaudi*	Ebenaceae	45
Traying	*Diospyros helferi*	Ebenaceae	45
Chheu Khmao	*Diosyros sp*	Ebenaceae	45
Chheu Tiel Bang	*Dipterocaprpus costatus*	Dipterocarpaceae	60
Chheutiel Tik	*Dipterocaprpus alatus*	Dipterocarpaceae	60
Kuoy/Neang deang	*Dipterocaprpus dyeri*	Dipterocarpaceae	60
Traach	*Dipterocaprpus intricatus*	Dipterocarpaceae	50
Chheutiel Thngor	*Dipterocaprpus jourdainii*	Dipterocarpaceae	60

Common Name	Scientific Name	Family	Diameter Limit (cm)
Tbaeng	*Dipterocaprpus obtusifolius*	Dipterocarpaceae	45
Khlong	*Dipterocaprpus tuberculatus*	Dipterocarpaceae	50
Hundaang	*Disoxylon loureiri*	Meliaceae	45
Priing	*Eugenia sp.*	Myrtaceae	30
Taa Traav	*Fagraea fragrans*	Loganiaceae	45
Tra Muung	*Garcinia schomburghiana*	Guttiferae	45
Pruus	*Gercinia ferrea*	Guttiferae	30
Atit	*Hassia cuneata*	Lauraceae	45
Aataing/ Rotaing	*Homalium annamensis*	Flacourtiaceae	35
Koki Thmor	*Hopea ferrea*	Dipterocarpaceae	50
Koki dack	*Hopea helfera*	Dipterocarpaceae	50
Koki masao	*Hopea odorata*	Dipterocarpaceae	50
Koki khsach	*Hopea pierre*	Dipterocarpaceae	45
Po Peil	*Hopea recopei*	Dipterocarpaceae	50
Kra Bao	*Hydnocarpus anthelmitica*	Flacourtiaceae	30
Kraa Sa	*Kayea engeniafolia*	Guttiferae	30
Smaa Krabey	*Knema coricisa*	Myristicaweae	45
Sralao/Enthaneil	*Lagerstroemia sp*	Lythraceae	35
Bei Leuy	*Litsea veng*	Lauraceae	45
Sway Prey	*Mangifera indica*	Anacardiaceae	45
Kaes	*Manikora alexandra*	Sapotaceae	45
Smach	*Melaleuca leucadendron*	Myrtaceae	30
Kreul	*Melanorrhea laccifera*	Anacardiaceae	45
Bos Neak	*Mesua ferrea*	Guttiferae	30
ThLork	*Parinarium annamensis*	Rosaceae	45
Srakum	*Payena elliptica*	Sapotaceae	45
Triel	*Peltophorum dasyrachis*	Leguminosae	35
Traseik/ Tramkang	*Peltophorum ferrugineum*	Leguminosae	35
Raing Phnom	*Shorea siamensis*	Dipterocarpaceae	45
Sral	*Pinus merkusii*	Pinasae	45
Srol Sor	*Podocarpus cupnessina*	Podocarpaceae	45
Thnong	*Pterocarpus pedatus*	Leguminosae	45
Kampiing Reach	*Sandoricum indicum*	Meliaceae	45
Kdol	*Sarcocephalus cordatus*	Rubiaceae	30
Koki Phnorng	*Shorea hypochra*	Dipterocarpaceae	45
Phchek	*Shorea obtuse*	Dipterocarpaceae	45
Lum boi	*Shorea sp.*	Dipterocarpaceae	45
Khchov	*Shorea thorelli*	Dipterocarpaceae	45
Char Chong	*Shorea vulgaris*	Dipterocarpaceae	60
Kra Koh	*Sindora cochinchinensis*	Leguminosae	45

Common Name	Scientific Name	Family	Diameter Limit (cm)
Chan Tumpaing	*Sterculia campanulata*	Sterculiaceae	45
Angkat Tmaat	*Stereospermum cheloneoldes*	Bignoniaceae	45
Sway Chamreang	*Swintonia pierri*	Anacardiaceae	45
Dounchaem Spong	*Tarrietia javanica*	Sterculiaceae	45
Mai Sak	*Tectona grandis*	Verbenaceae	45
Ta Uor	*Termanlia chebula*	Combretaceae	45
Praa Dam Leng	*Terminalia mucronata*	Combretaceae	40
Chhliik	*Terminalia tomentosa*	Combretaceae	45
Sam Pung	*Tetramels nudiflora*	Datiscaceae	60
Chhamm Chhaa	*Toona febrifuga*	Meliaceae	30
Chramas	*Vatica astrotricha*	Dipterocarpaceae	30
Tra Lat	*Vatica philastreana*	Dipterocarpaceae	30
Popuul or Phneis	*Vitex sp.*	Verbenaceae	45
Sokrom	*Xylia dolabriformis*	Leguminosae	45
Some commercial species from Amazonian Brazil (Wellhöfer 2002)			
Sucupira vermelha	*Andira unifolialata*	Fabaceae	60
Amapá	*Brosimum parinarioides*	Moraceae	55
Guariuba	*Clarisia racemosa*	Moraceae	50
Angelim vermelho	*Dinizia excelsa*	Mimosaceae	50
Sucupira preta	*Diplotropis triloba*	Fabaceae	50
Cumarú	*Dipteryx odorata*	Fabaceae	50
Jatobá	*Hymenaea courbaril*	Caesalpiniaceae	50
Angelim pedra	*Hymenolobium heterocarpum*	Fabaceae	60
	Hymenolobium nitidum;	Fabaceae	60
Massaranduba	*Manilkara huberi*	Sapotaceae	60
	Mezilaurus duckei	Lauraceae	50
Louro itaúba	*Mezilaurus sinandra*	Lauraceae	50
Louro gamela	*Nectandra (Ocotea) rubra*	Lauraceae	50
Louro preto	*Ocotea fragantissima*	Lauraceae	60
Uchi torrado	*Sacoglottis guianensis*	Humiriaceae	60
	Vantanea parviflora	Humiriaceae	60
Some commercial species in Bolivian forest			
Blanquillo	*Ampelocera ruizii*	Ulmaceae	50
Peroba-poca	*Aspidosperma cylindrocarpon*	Apocynaceae	50
	Caesalpinia pluviosa	Caesalpiniaceae	50
Cachimbo	*Cariniana domestica*	Lecythidaceae	50
Jequitiba	*Cariniana estrellensis*	Lecythidaceae	50

Common Name	Scientific Name	Family	Diameter Limit (cm)
	Cariniana ianeirensis	Lecythidaceae	50
Cedro	*Cedrela fissilis*	Meliaceae	50
Fromager	*Ceiba pentandra*	Bombacaceae	50
Ararib	*Centrolobium microchaete*	Fabaceae	50
Guariuba	*Clarisia racemosa*	Moraceae	50
Capa	*Cordia alliodora*	Boraginaceae	50
Bibosi colorado	*Ficus boliviana*	Moraceae	70
Ajo-ajo	*Gallesia integrifolia*	Phytolaccaceae	50
Catahua	*Hura crepitans*	Euphorbiaceae	70
Jatobá	*Hymenaea courbaril*	Caesalpiniaceae	50
Iba	*Pouteria nemorosa*	Sapotaceae	50
Nui	*Pseudolmedia laevis*	Moraceae	50
Amendoim	*Pterogyne nitens*	Caesalpiniaceae	50
Pinho Cuiabano	*Schizolobium amazonicum*	Caesalpiniaceae	50
Mombin	*Spondias mombin*	Anacardiaceae	50
Sucupira	*Sweetia fruticosa*	Fabaceae	50
Caoba, Mogno	*Swietenia macrophylla*	Meliaceae	70
Tahuari	*Tabebuia serratifolia*	Bignoniaceae	50
Sura	*Terminalia oblonga*	Combretaceae	50

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