The IUCN Red List of Threatened Species™
ISSN 2307-8235 (online)
IUCN 2008: T170526A1316202
Scope: Global
Language: English

Pelochelys signifera, Northern New Guinea Softshell Turtle

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Citation: Rhodin, A.G.J., Richards, S., Georges, A., Amepou, Y. & Hamidy, A. 2018. *Pelochelys signifera*. The IUCN Red List of Threatened Species 2018: e.T170526A1316202.
http://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T170526A1316202.en

Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Reptilia	Testudines	Trionychidae

Taxon Name: *Pelochelys signifera* Webb, 2003

Common Name(s):

- English: Northern New Guinea Softshell Turtle

Taxonomic Source(s):

TTWG (Turtle Taxonomy Working Group: Rhodin, A.G.J., Iverson, J.B., Bour, R. Fritz, U., Georges, A., Shaffer, H.B. and van Dijk, P.P.). 2017. Turtles of the World: Annotated Checklist and Atlas of Taxonomy, Synonymy, Distribution, and Conservation Status (8th Ed.). In: Rhodin, A.G.J., Iverson, J.B., van Dijk, P.P., Saumure, R.A., Buhlmann, K.A., Pritchard, P.C.H., and Mittermeier, R.A. (eds), *Conservation Biology of Freshwater Turtles and Tortoises: A Compilation Project of the IUCN/SSC Tortoise and Freshwater Turtle Specialist Group*, pp. 1-292. Chelonian Research Monographs.

Taxonomic Notes:

In the past, specimens of softshell turtles collected from New Guinea were all originally assigned to what was considered to be a widespread Australasian species, *Pelochelys bibroni* (Owen 1853), until Rhodin *et al*. (1993) and Webb (1995) defined *P. bibroni* as being restricted to southern New Guinea, and separate from the previously described *P. cantorii* (Gray 1864) in the rest of Asia and northern New Guinea. Subsequently, Webb (2003) described the northern New Guinea softshell as the new species *Pelochelys signifera*. This taxonomy has been accepted since then (TTWG 2017). *Pelochelys signifera* was described largely based on characteristics of a juvenile specimen and coloration and texturing of the carapace to distinguish it from *P. cantorii*. No geographic variation has been reported within the species' range and no subspecies have been named. Phylogenetic relationships with *P. cantorii* and *P. bibroni* warrant further investigation.

Assessment Information

Red List Category & Criteria: Vulnerable A4cde ver 3.1

Year Published: 2018

Date Assessed: March 29, 2018

Justification:

Pelochelys signifera is a large-bodied softshell turtle highly favoured for its flesh, and attracting a high price in local consumption trade; its large size makes it a prime target species. It is also suspected to be impacted by dramatic aquatic vegetation changes owing to introduced fish on key habitat attributes, particularly floating mats. An ongoing population reduction of over 30% over three generations (estimated at 45 years) is considered likely as a result of declines in habitat quality, the effects of introduced fish, and significant exploitation pressures on an already depleted and relatively uncommon species, qualifying *P. signifera* as Vulnerable under criterion A4cde.

http://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T170526A1316202.en

The species has not previously been formally assessed for the IUCN Red List, but when New Guinea softshells were last assessed for the Red List in 2000, *Pelochelys bibroni* from southern New Guinea was assessed as Vulnerable, and northern New Guinea softshells were still considered to be part of the wide-ranging Asian softshell, *Pelochelys cantorii*, and were included in the assessment for that species, being listed as globally Endangered. *Pelochelys signifera* was provisionally assessed as Data Deficient at a Red List Workshop in Brisbane in 2011, but that limited assessment was never published.

Geographic Range

Range Description:

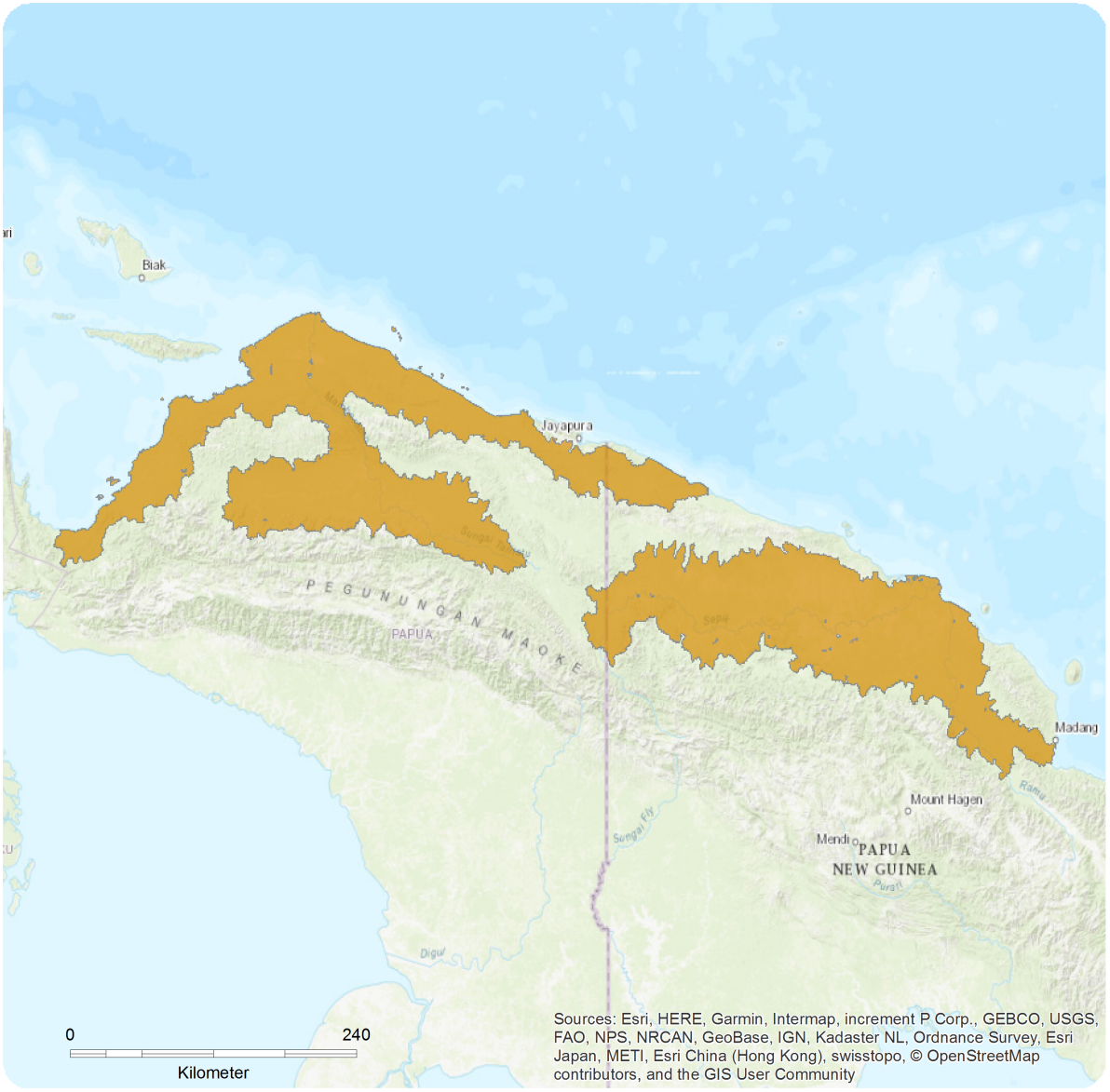
Pelochelys signifera occurs in the northern lowlands of New Guinea extending from the Madang region of Papua New Guinea (Ramu drainage basin), the Sepik drainage basin, and along the north coast to Wanggar River (Nabire region, southern shore of Cenderawasih Bay) in West Papua, Indonesia, and including the large inland Mamberamo drainage of north-central Indonesian Papua (Rhodin *et al.* 1993, Richards *et al.* 2002, Sheil *et al.* 2015, TTWG 2017).

Country Occurrence:

Native: Indonesia (Papua); Papua New Guinea (Papua New Guinea (main island group))

Distribution Map

Pelochelys signifera

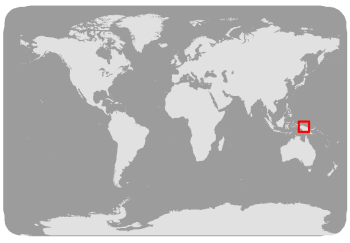


Range

Extant (resident)

Compiled by:

IUCN (International Union for Conservation of Nature)



The boundaries and names shown and the designations used on this map do not imply any official endorsement, acceptance or opinion by IUCN.

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Population

Population status for *Pelochelys signifera* is largely unknown, but it is harvested by locals whenever encountered and occurs at low densities according to local informants (Richards *et al.* 2002, S.Richards unpubl. data, Sheil *et al.* 2015). An estimated ongoing population reduction of over 30% over three generations is considered likely as a result of declines in habitat quality, the effects of introduced fish, and significant exploitation pressures.

Current Population Trend: Decreasing

Habitat and Ecology **(see Appendix for additional information)**

Pelochelys signifera is a large and highly aquatic softshell that occupies the larger rivers, wetlands, estuaries and coastal regions under freshwater influence, within its range. It probably occasionally enters the near-coastal marine environment, as both *P. bibroni* in southern New Guinea and *P. cantorii* in southeastern Asia enter the marine environment on a regular basis (Rhodin *et al.* 1993, Das 2008). The species probably reaches a carapace length of nearly 100 cm; the largest measured specimen from the Sepik in Papua New Guinea had a carapace length of 55 cm (Rhodin *et al.* 1993), and a specimen photographed with a fisherman on the Tariku River in the Mamberamo drainage of Indonesian Papua appears to have a carapace length of about 90-100 cm (Sheil *et al.* 2015). The diet of the species is poorly known, but is hypothesized to include fish, prawns, and crabs. Nesting occurs in the dry season (September–October) (Cox 1984, Rhodin *et al*. 1993), but nesting habits, clutch sizes, and clutch frequency are not known. Three nests have been reported from a nest mound of *Crocodylus novaeguineae* in the Sepik River (Cox 1984). Growth rate and age and size at maturity remain unknown. Generation time is not known but is almost certainly over 10 years and we assume it to be 15 years in view of the large adult size of the species and similar generation times in other large Asian and African softshells.

Systems: Terrestrial, Freshwater, Marine

Use and Trade

Pelochelys signifera is highly prized as food by local people, with both adults and eggs harvested. It is exploited throughout its range due to its large size and favoured flesh, and is collected by locals whenever encountered (Rhodin *et al.* 1993, Richards *et al.* 2002, Sheil *et al.* 2015, S. Richards unpubl. data). In the Sepik region of Papua New Guinea, bony shells of the species, left over from collection for food, are often decorated and sold into the tourist curio trade as ceremonial masks (Rhodin *et al*. 1993). The species occurs in the international pet trade in modest numbers.

Threats **(see Appendix for additional information)**

Pelochelys signifera is a large bodied turtle highly favored by local people for its size and flesh, and attracting a high price in local trade. It is collected as part of general fishing activity, occasionally speared or caught by hand in shallow waters of swamps and ponds, in nets and traps and on baited lines (Rhodin *et al.* 1993, Richards *et al.* 2002, Sheil *et al.* 2015, S. Richards unpubl. data). It is often hunted and caught by hand in shallow clear waters with sandy or muddy bottoms, where the outline of the animal buried shallowly in the sediments can readily be perceived, making it vulnerable to capture (S. Richards unpubl. data). The species is a solitary sporadic nester, so its eggs are collected opportunistically.

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Pelochelys signifera is also suspected to be impacted by dramatic changes to key habitat attributes, specifically changes to aquatic vegetation, particularly the loss of floating vegetation mats caused by the introduction of several species of invasive alien fish—Java Carp (*Barbonymus gonionotus* [was *Puntius gonionotus*]), Red-bellied Pacu (*Piaractus brachypomus*), Red Makau (*Coptodon rendalli* [was *Tilapia rendalli*]), and Emily's Fish (*Prochilodus argenteus* [was *P. margravii*])—in the Sepik and Ramu drainage basins in Papua New Guinea in 1991 (Kolkolo 2003, FAO 2005). Following their introduction, populations of these fish have grown throughout the floodplains of the Ramu and the Sepik Rivers; but the question of whether or not these introductions were environmentally and socially successful has as yet to be answered by appropriate research. The PNG Government has not yet carried out impact studies on the introduction and transfer of fish, and although vulnerable people with limited resources and negligible political representation were provided with more food and economic opportunity, it was done at the price, however, of changing the local biodiversity and ecosystem (Kolkolo 2003, FAO 2005). In particular, anecdotal reports suggest that expanding populations of the primarily vegetarian fish, Red-bellied Pacu, have consumed the floating mats of vegetation in the Sepik River, which served as fish nurseries and crocodile and bird nesting sites. Some have suggested that the entire ecosystem has become impoverished and local people cannot subsist as easily as they once did (A. Georges pers. comm.). These ecosystem changes and the associated food chain cascade potentially negatively impact native floodplain species such as *Pelochelys signifera*.

Conservation Actions **(see Appendix for additional information)**

In Indonesian Papua, the species is not yet fully protected by Government Regulation of The Republic of Indonesia no. 7 of 1999 on Preserving Flora and Fauna Species. Harvest of the species is controlled by a quota system; in 2016 limits were set at 500 annual catch, 450 export quota, and 15 cm maximum carapace length for sale as pets, these numbers were adjusted in 2018 to 300 catch, 270 export, and 20 cm for sale as pets. The species occurs in the Foja Wildlife Reserve in the Mamberamo drainage.

In Papua New Guinea, the Fauna (Protection and Control) Act 1966, makes provision for the protection, control, harvesting and destruction of any fauna in protected areas, so populations of this species occurring within protected areas receive some protection. However, indigenous use for subsistence purposes is permitted within protected areas. The species is not specifically protected outside designated protected areas, but transport of live animals within PNG is regulated and export of live animals of any species from Papua New Guinea is strictly controlled. The species probably occurs in the floodplain portions of the Hunstein Range Wildlife Management Area in the Sepik drainage, and in the Wanang Conservation Area in the Ramu drainage.

International trade in *Pelochelys signifera* is regulated by its inclusion as *Pelochelys* spp. in CITES Appendix II since 2003.

Population status surveys and subsistence use and trade monitoring are needed, especially in terms of occurrence and status in protected areas. Research on the species' natural history, including diet, habitat use, reproduction, growth and population dynamics, is desirable.

Credits

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Citation

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2.RLTS.T170526A1316202.en

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External Resources

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Appendix

Habitats

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Habitat	Season	Suitability	Major Importance?
5. Wetlands (inland) -> 5.1. Wetlands (inland) - Permanent Rivers/Streams/Creeks (includes waterfalls)	-	Suitable	-
5. Wetlands (inland) -> 5.5. Wetlands (inland) - Permanent Freshwater Lakes (over 8ha)	-	Suitable	-
9. Marine Neritic -> 9.5. Marine Neritic - Subtidal Sandy-Mud	-	Marginal	-
9. Marine Neritic -> 9.10. Marine Neritic - Estuaries	-	Marginal	-

Threats

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Threat	Timing	Scope	Severity	Impact Score
5. Biological resource use -> 5.1. Hunting & trapping terrestrial animals -> 5.1.1. Intentional use (species is the target)	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	Stresses:	2. Species Stresses -> 2.1. Species mortality		
5. Biological resource use -> 5.1. Hunting & trapping terrestrial animals -> 5.1.2. Unintentional effects (species is not the target)	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	Stresses:	2. Species Stresses -> 2.1. Species mortality		
7. Natural system modifications -> 7.3. Other ecosystem modifications	Ongoing	Minority (50%)	Causing/could cause fluctuations	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation		
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Barbonymus gonionotus)	Ongoing	Minority (50%)	Causing/could cause fluctuations	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation		
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Piaractus brachypomus)	Ongoing	Minority (50%)	Causing/could cause fluctuations	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation		
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Coptodon rendalli)	Ongoing	Minority (50%)	Causing/could cause fluctuations	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation		

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8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Prochilodus argenteus)	Ongoing	Minority (50%)	Causing/could cause fluctuations	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation		

Conservation Actions in Place

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Conservation Actions in Place
In-Place Land/Water Protection and Management
Occur in at least one PA: Yes
In-Place Education
Included in international legislation: Yes
Subject to any international management/trade controls: Yes

Conservation Actions Needed

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Conservation Actions Needed
1. Land/water protection -> 1.1. Site/area protection
1. Land/water protection -> 1.2. Resource & habitat protection

Research Needed

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Research Needed
1. Research -> 1.1. Taxonomy
1. Research -> 1.2. Population size, distribution & trends
1. Research -> 1.3. Life history & ecology
1. Research -> 1.5. Threats
3. Monitoring -> 3.1. Population trends
3. Monitoring -> 3.2. Harvest level trends
3. Monitoring -> 3.3. Trade trends
3. Monitoring -> 3.4. Habitat trends

Additional Data Fields

Habitats and Ecology
Generation Length (years): 15

The IUCN Red List Partnership

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