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Phycodurus eques, Leafy Seadragon

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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Actinopterygii	Syngnathiformes	Syngnathidae

Taxon Name: Phycodurus eques (Günther, 1865)

Synonym(s):

- Phycodurus glauerti Whitley, 1939
- Phyllopteryx eques Günther, 1865

Common Name(s):

• English: Leafy Seadragon, Glauerts Seadragon

Taxonomic Source(s):

Günther, A. 1865. On the pipe-fishes belonging to the genus *Phyllopteryx*. *Proceedings of the Zoological Society of London* 1865(1): 327-328, plates 14-15.

Taxonomic Notes:

Synonym = *Phycodurus glauerti* Whitley, 1939.

Assessment Information

Red List Category & Criteria:	Least Concern ver 3.1		
Year Published:	2017		
Date Assessed:	May 12, 2016		

Justification:

Phycodurus eques is a coastal marine seadragon that inhabits macroalgae and seagrass to depths of 30 m. The species is threatened by habitat degradation and loss that is resulting from coastal development and pollution, especially around urban centers. However, these reductions have not been measured and probably represent a small proportion of totals of fish abundances and habitat extent. Threats from bycatch and aquarium collection are present but are not thought to be causing substantial declines. There are no other known threats. Therefore this species is listed as Least Concern.

Previously Published Red List Assessments

2006 – Near Threatened (NT) http://dx.doi.org/10.2305/IUCN.UK.2006.RLTS.T17096A6798664.en

1996 – Data Deficient (DD)

Geographic Range

Range Description:

Phycodurus eques is a coastal species that occurs from Western Australia (Abrolhos Islands) to western

Victoria (Kuiter 2000a, Baker 2002, Stiller *et al.* 2015). Unconfirmed reports of sightings come from the Bass Strait Islands (King Island, Kent Group) of northwestern Tasmania (K. Martin-Smith, pers. comm. 2006).

This species been recorded down to 30 m (Kuiter 2000b).

Country Occurrence:

Native: Australia (South Australia, Victoria, Western Australia)

FAO Marine Fishing Areas:

Native: Indian Ocean - eastern

Distribution Map

Phycodurus eques



Range

Extant (resident)

Compiled by: IUCN Seahorse, Pipefish & Stickleback Specialist Group



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Population

To date there have been few dedicated surveys and no population estimates for *Phycodurus eques*. Just one estimate of density exists for this species, from a single location at one time. Connolly *et al.* (2002a) estimated the density of Leafy Seadragons around West Island, in Encounter Bay, to be 57 fish per ha (small juveniles (less than 100 mm) were not included in the study). Further research is needed in order to determine population size across the species' range, and monitoring should be undertaken to determine trends in abundance. The species is likely declining as a result of ongoing coastal development and pollution in the region, but this has not been quantified.

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

Phycodurus eques occurs near rocky reefs supporting stands of kelp or other macroalgae, where they have been observed feeding on mysids and other crustaceans (Kuiter 2000a). Telemetry using ultrasonic transmitters has shown, however, that this species is just as prevalent over shallow (5–15 m depth) *Posidonia* seagrass meadows and patches of sand amongst seagrass (Connolly *et al.* 2002b).

Leafy Seadragons tracked over periods of up to 10 days typically remained within well-defined home ranges of up to 5 ha (Connolly *et al.* 2002b). Patterns of movement are characterized by short bursts (at average velocities of 2–17 m/h) punctuating long periods (up to 68 h) without movement. No diel pattern of movement is apparent (Connolly *et al.* 2002b).

This species can survive for at least two to three years in aquaria if supplied with its specific live food requirements (P. Quong, pers. comm. in Pogonoski *et al.* 2002). Longevity *in situ* is not known. *Phycodurus eques* attains a maximum length of about 35 cm (Kuiter 1993).Mating occurs during summer months (Kuiter 2000b). As with other syngnathids, male seadragons carry the fertilized embryos. For Leafy Seadragons, the male broods about 200 embryos on the exposed surface of the underside of its tail (there is no pouch).

Phycodurus eques is particularly well camouflaged, with a number of frond-like appendages that resemble kelp. The species also rocks back and forth with wave action, increasing its resemblance to algae swept by coastal surge (Gomon *et al.* 1994).

Leafy Seadragons lack a caudal fin and are weak swimmers; in conjunction with a lack of a dispersive egg phase, this potentially makes them vulnerable to habitat loss and degradation as well as to incidental harvesting during commercial fishing (Connolly *et al.* 2002b).

Populations in South Australia and Western Austalia show molecular evidence of demographic independence (Stiller *et al.* 2016).

Systems: Marine

Use and Trade

Phycodurus eques is not traded for use in traditional medicines as other syngnathid fishes are. The species has been noted in the aquarium trade, but levels of offtake are thought to be low (Martin-Smith

and Vincent 2006).

Threats (see Appendix for additional information)

Phycodurus eques is threatened by coastal habitat loss and degradation and by being caught as bycatch in fisheries.

Leafy Seadragons are associated with seagrass beds and reefs supporting macroalgae (Connolly *et al.* 2002b). These habitats have been adversely affected by human activities and loss in quality and quantity has been documented and is ongoing (Baker 2003, Marzinelli *et al.* 2015). The loss of habitat is most severe near major urban centres (e.g., Perth, Adelaide, Melbourne), where discharge of storm water and treated sewage leads to eutrophication and increased sedimentation. Losses of seagrass have been particularly severe along the metropolitan coasts and are well documented (Short and Wyllie-Echeverria 1996).

Connolly *et al.* (2002b) report anecdotal evidence that Leafy Seadragons are killed as incidental bycatch in the trawling industry in South Australia. Fishers have indicated that on occasions they catch "large numbers" of Leafy Seadragons. This information remains at the level of anecdote however, and neither the rate nor distribution of incidental catch have been substantiated.

The species is collected for the aquarium trade but levels of offtake are thought to be low (Martin-Smith and Vincent 2006).

This species is a major attraction for the dive industry in southern Australia, and it has been made the official fish emblem in the state of South Australia. Recreational divers often harass or disturb individuals (Kuiter 2000a). Suitable protocols for divers should be encouraged to protect local populations, but the disturbance probably does not harm the long-term prospects for regional populations.

Conservation Actions (see Appendix for additional information)

Phycodurus eques occurs in several protected areas throughout its range, and is fully protected along with all other syngnathids by the Australian Environment Protection and Biodiversity Conservation Act (1999). There are no species-specific conservation measures in place, and this species is not mentioned in any international legislation or trade regulations.

Credits

Assessor(s):	Pollom, R.		
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External Resources

For Images and External Links to Additional Information, please see the Red List website.

Appendix

Habitats

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

Habitat	Season	Suitability	Major Importance?
9. Marine Neritic -> 9.1. Marine Neritic - Pelagic	-	Marginal	-
9. Marine Neritic -> 9.7. Marine Neritic - Macroalgal/Kelp	-	Suitable	-
9. Marine Neritic -> 9.9. Marine Neritic - Seagrass (Submerged)	-	Suitable	-
10. Marine Oceanic -> 10.1. Marine Oceanic - Epipelagic (0-200m)	-	Unknown	-

Threats

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

Threat	Timing	Scope	Severity	Impact Score
1. Residential & commercial development -> 1.1. Housing & urban areas	Ongoing	-	-	-
	Stresses:	1. Ecosystem	n stresses -> 1.1. Ecos	system conversion
		1. Ecosystem	n stresses -> 1.2. Ecos	system degradation
1. Residential & commercial development -> 1.2. Commercial & industrial areas	Ongoing	-	-	-
	Stresses:	1. Ecosystem	n stresses -> 1.1. Ecos	system conversion
		1. Ecosystem	n stresses -> 1.2. Ecos	system degradation
5. Biological resource use -> 5.3. Logging & wood harvesting -> 5.3.3. Unintentional effects: (subsistence/small scale) [harvest]	Ongoing	-	-	-
	Stresses:	2. Species St	resses -> 2.1. Species	s mortality
5. Biological resource use -> 5.3. Logging & wood harvesting -> 5.3.4. Unintentional effects: (large scale) [harvest]	Ongoing	-	-	-
	Stresses:	2. Species St	resses -> 2.1. Species	s mortality
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.1. Intentional use: (subsistence/small scale) [harvest]	Future	-	-	-
	Stresses:	2. Species Stresses -> 2.1. Species mortality		
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.6. Motivation Unknown/Unrecorded	Ongoing	-	-	-
	Stresses:	1. Ecosystem	n stresses -> 1.2. Ecos	system degradation
9. Pollution -> 9.1. Domestic & urban waste water -> 9.1.1. Sewage	Ongoing	-	-	-
	Stresses:	1. Ecosystem	n stresses -> 1.2. Ecos	system degradation

9. Pollution -> 9.3. Agricultural & forestry effluents -> 9.3.2. Soil erosion, sedimentation	Ongoing	
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation
9. Pollution -> 9.3. Agricultural & forestry effluents -> 9.3.4. Type Unknown/Unrecorded	Ongoing	
	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 Research, Monitoring and Planning
Action Recovery plan: No
Systematic monitoring scheme: No
In-Place Land/Water Protection and Management
Conservation sites identified: No
Occur in at least one PA: Yes
Area based regional management plan: Yes
In-Place Species Management
Harvest management plan: No
Successfully reintroduced or introduced beningly: No
Subject to ex-situ conservation: Unknown
In-Place Education
Subject to recent education and awareness programmes: No
Included in international legislation: No
Subject to any international management/trade controls: No

Conservation Actions Needed

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

Conservation Actions Needed
1. Land/water protection -> 1.1. Site/area protection
2. Land/water management -> 2.1. Site/area management

Research Needed

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

Research Needed
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 -> 3.4. Habitat trends

Additional Data Fields

Distribution
Estimated area of occupancy (AOO) (km ²): 112355
Continuing decline in area of occupancy (AOO): Unknown
Extreme fluctuations in area of occupancy (AOO): Unknown
Estimated extent of occurrence (EOO) (km ²): 400000
Continuing decline in extent of occurrence (EOO): Unknown
Extreme fluctuations in extent of occurrence (EOO): Unknown
Continuing decline in number of locations: Unknown
Extreme fluctuations in the number of locations: Unknown
Lower depth limit (m): 30
Upper depth limit (m): 0
Population
Continuing decline of mature individuals: Unknown
Extreme fluctuations: Unknown
Population severely fragmented: Unknown
Continuing decline in subpopulations: Unknown
Extreme fluctuations in subpopulations: Unknown
All individuals in one subpopulation: No
Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: Yes
Movement patterns: Not a Migrant

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