Porphyrio porphyrio **System:** Freshwater_terrestrial

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Aves	Gruiformes	Rallidae

Common name Modrzyk (Polish), purperkoet (Dutch), seikei (Japanese), sulttaanikana (Finnish), Purpurhuhn (German), pukeko (Maori, New Zealand), calamón común (Spanish), purpurhöna (Swedish), slípka modrá (Czech), sultanhøne (Danish), sultanhøne (Norwegian), sultánka modrá (Slovak), talève sultane (French), pollo sultano (Italian), bláhæna (Icelandic), caimão (Portuguese)

Synonym

Similar species *Gallinula chloropus, Porphyrio martinica*

Summary The ecological similarity of the purple swamphen (*Porphyrio porphyrio*) to the Florida native common moorhen (*Gallinula chloropus*) and purple gallinule (*Porphyrula martinica*) have prompted efforts to eliminate this member of the rail family from Florida. It is not clear what negative consequences could result from these non-native birds but in other parts of the world they are noted for their aggressive behaviour and their habit of eating other bird's eggs.

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Species Description
The purple swamphen (*Porphyrio porphyrio*) is a large rail which weighs on average 850 g (female) to 1050 g (male) (Balasubramaniam & Guay 2008). Purple swamphens have a clumsy gait when running and somewhat resemble large, purple, skinny chickens (Pearlstine & Ortiz 2009). Purple swamphens have large red bills and frontal shields, red irides, orange legs and toes, usually with blackish areas at the heel and toe joints, white undertail coverts, and bodies that are pale blue, brilliant blue, purplish, or blackish (del Hoyo *et al*. 1996, Beaman & Madge 1998, as cited in Pranty *et al*. 2000). Australian birds are darkest, with blackish wings and backs; Phillipine birds are the palest and have rusty backs; and African birds have greenish backs; juvenal plumage is characterised by dull plumage and a dusky bill and frontal shield (del Hoyo *et al*. 1996, Beaman & Madge 1998, as cited in Pranty *et al*. 2000). Both sexes are similar, with females just slightly smaller; females also possess a smaller frontal shield (Pearlstine & Ortiz 2009). Juveniles are both duller-colored and paler than adults and may easily be confused with young of other related species, especially just after hatching, when all rails look like little black or brown fluffballs (Pearlstine & Ortiz 2009).
Purple swamphen eggs vary in shape, texture, and color; they may be long, oval, or elliptical; the surface may be smooth, glossy, or slightly rough; eggs come in an array of colors such as pale green, yellow-stone, creamy-white, pink, spotted, blotched, maroon, purple, and violet (eggs found in south Florida have been tan with brown spots) (Source: Pearlstine & Ortiz 2009).
In their native range, purple swamphens are known to be very vocal, with a repertoire of calls that includes a common, trumpeting call with a nasal rattle - *quinquinkrrkrr* - and a wide variety of groans, wails, squawks, shrieks, and hums (Johnson & McGarrity 2009). When displayed, their long and powerful song consists of nasal rattles that crescendo and is territorial in nature (Pearlstine & Ortiz 2009). Purple swamphens are quite terrestrial and will walk and climb readily but don't usually swim (Pearlstine & Ortiz 2009). They can be seen flying between areas in rice fields where groups are present (Pearlstine & Ortiz 2009).

Notes
The purple swamphens taxonomy is complex and inadequately studied; at least 13 subspecies are currently recognised, three of which could be elevated to species status (Taylor & van Perlo\n1998, as cited in Doss *et al*. 2009). Although *P. porphyrio* is classified as globally Non-threatened (del Hoyo *et al*. 1996), the nominal subspecies *P. p. porphyrio*, which is found along the western Mediterranean and south Atlantic regions, is considered a SPEC 3, classified as Rare in Europe (Tucker & Heath 1994) and Endangered in Portugal (Portuguese Red Data Book, Cabral *et al*. 1990) (as cited in Pacheco & McGregor 2004).

Habitat Description
The purple swamphean lives in marshes, lagoons, and reservoirs with appropriate vegetation cover and water depth. Areas with tall, thick vegetation cover and shallow calm water are generally preferred (Cramp & Simmons 1980, Sanchez-Lafuente *et al*. 1998, as cited in Doss *et al*. 2009). They inhabit a wide variety of wetland habitats and they are found in ponds, lakes, dams, marshes, swamps, rivers, floodplains, rice fields, and water treatment ponds (Johnson & McGarrity 2009). The species also extends into open habitats adjacent to wetlands including grasslands, agricultural land, parks, gardens, and road and forest edges (Johnson & McGarrity 2009). They prefer permanent extensive wetlands with floating mats of water-lilies, tall, dense emergent vegetation (e.g. reeds *Phragmites* spp., *Typha* spp., sedge *Carex* spp., papyrus *Cyperus* spp., *Scirpus* spp. or *Eleocharis* spp.), muddy or sandy shorelines and patches of shallow water (Birdlife International 2009). They may occur in saline, eutrophic or turbid wetlands, and may be found on small waters and seasonal or temporary wetlands (e.g. in Africa) (Birdlife International 2009). They usually inhabit lowlands, but have been found at laltitudes more than 3000 m above sea level (Johnson & McGarrity 2009).
In the Mediterranean region, the species is highly dependent on lowland fresh or brackish water wetlands with abundant emergent vegetation, such as reedmace (*Thypha* sp.), reeds (*Phragmites* sp.) and sedges (*Carex* sp.) (Cramp & Simmons 1980, del Hoyo *et al*. 1996, Sanchez-Lafuente *et al*. 1992 2001, as cited in Pacheco & McGregor 2004). In New Zealand the swamphen (or *pukeko*) is often seen on roadsides, in wetlands or near drainage ditches (Brown *et al*. 1986, Jamieson 1994, as cited in Washington *et al*. 2008).

Reproduction
Purple swamphens have been intensively studied in Italy, Spain, and New Zealand (see Grussu 1999; Sanchez-Lafuente 1993 and Craig 1980, as cited in Doss *et al*. 2009). Clutch size of swamphens varies geographically, usually decreasing\nwith latitude: 3 - 7 (southern India; Doss *et al*. 2009); 3 - 5 (Spain; Manez 1997); 4 - 6 (Italy; Schenk 1993); 3 - 6 (Algeria; Moali & Isenmann 2000); and 2 - 10 (New Zealand; Craig 1980) (as cited in Doss *et al*. 2009). Incubation period also varies: 19 - 22 (southern India; Doss *et al*. 2009); 23 - 25 days (Spain; Manez 1997); 24 - 27 days (Italy; Schenk 1993); 22 - 26 days (Algeria; Moali & Isenmann 2000); and 23 - 27 days (New Zealand; Craig & Jamieson 1990) (as cited in Doss *et al*. 2009). Hatching success was reported as 61% (n=113; southern India; Doss *et al*. 2009); 45.2 - 57.9% (Sanchez-Lafuente *et al*. 1998); and 73% (New Zealand Craig 1980) (as cited in Doss *et al*. 2009).

Nutrition
The purple swamphen feeds on new grass shoots, invertebrates, berries and grains (Washington *et al*. 2008). Quantitative investigations into diets of purple swamphens in Australia and New Zealand demonstrated that this species is almost completely herbivorous; animal matter constitutes only a minor portion of the diet and is mainly represented by insects and arachnids (Carroll 1966, Norman & Mumford 1985, as cited in Balasubramaniam & Guay 2008). However, they have been reported to eat fish, lizards, and birds (Wheeler 1949, Oliver 1974, as cited in Balasubramaniam & Guay 2008). In their native range, they are known to eat the shoots, leaves, roots, stalks, flowers, and seeds of a wide variety of plants, including agricultural species such as rice and sugar cane (Birdlife International 2009; Johnson & McGarrity 2009). For example they are known to consume *Typha* spp., *Scripus* spp., rice, grasses, sedges, *Rumex* spp., *Polygonum* spp., water-lilies, clover *Trifolium* spp., fern *Salvonia repens*, bananas, tapioca and yam *Dioscorea* spp.) (Birdlife International 2009). They also consume animal prey, including molluscs, small crustaceans (isopods, amphipods and crabs), earthworms and leeches, adult and larval insects (Coleoptera, grasshoppers, Hemiptera, Diptera, Lepidoptera), fish and fish eggs, frogs and frog eggs, water snakes (*Natrix maura*), adult birds, bird eggs and nestlings, small rodents and carrion (Birdlife International 2009; Johnson & McGarrity 2009). In their introduced range in Florida purple swamphens have been seen eating stalks and other parts of horsetail (*Equisetum* spp.), cattail (*Typha* spp.), spikerush (*Eleocharis* spp.), and sedges (*Rhynchospora* spp.), as well as native snails, earthworms, birdseed, and garbage (Johnson & McGarrity 2009).

General Impacts
In their native range, swamphens are often observed away from wetlands and can damage grain and vegetable crops (Ripley 1977, del Hoyo *et al*. 1996, in Pranty *et al*. 2000). They have also been observed preying on nestlings and adults of different passerine species (McKenzie 1967, Egan 1992, Fitzsimons 2003), as well as eggs (Binns 1953, Fitzgerald 1966, Brown 1997) and ducklings from different waterfowl species including chestnut teal (*Anas castanea*) (van Tets 1965), Pacific black duck (*A. superciliosa*) (Nixon 1983, Bonser 1984), domestic muscovy duck (*Cairina moschata*) (Lowe 1966) and black swan (*Cygnus atratus*) eggs and cygnets (as cited in Balasubramaniam & Guay 2008).
Purple swamphens are known to be highly territorial and aggressive, and often fight amongst themselves and with other species over food (Johnson & McGarrity 2009). In large numbers, these aggressive invaders could have negative impacts on native birds (Johnson & McGarrity 2009).
A recent introduction to Florida, the purple swamphen has expanded from coastal southeast Florida into the Everglades Conservation Areas, and has been observed on Lake Okeechobee. Its ecological similarity to the native common moorhen (*Gallinula chloropus*) and purple gallinule (*Porphyrula martinica*) have prompted efforts to eliminate this member of the rail family (Hardin 2007). It is not clear what negative consequences could result from the presence of non-native species such as these, but Avery and Moulton (2007) argue that while the opportunity exists to remove them from the Florida landscape, it should be done. It makes little sense to wait and study the situation to see what impacts might accrue. As management action is delayed, populations of these species will increase and spread, making it that much more difficult and expensive to implement effective corrective measures later (Simberloff 2003, in Avery & Moulton 2007).

Management Info
Ecological concerns have prompted efforts to eliminate this member of the rail family from Florida's avifauna (Hardin 2007). Action was initiated in 2006 to limit the continued spread of the purple swamphen in south Florida and to remove it from the ecologically sensitive Everglades habitat and water treatment areas. An eradication effort using shotguns and actively chasing purple swamphens from airboats was pursued. Retrieval efforts were scheduled to continue to remove the remainder of the introduced population (Avery & Moulton 2007). The Florida FWC have killed over 3000 purple swamphens to date, mostly from Stormwater Treatment Areas and from Water Conservation Area 2B (areas south/southwest of the Arthur R. Marshall Loxahatchee National Wildlife Refuge) (Johnson & McGarrity 2009). The FWC is currently studying the movements of purple swamphens in order to collect information that will help to develop a long-term management plan (Johnson & McGarrity 2009).

Principal source: BirdLife International 2009. *Porphyrio porphyrio*. In: IUCN 2010. IUCN Red List of Threatened Species
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[5] UNITED STATES

Red List assessed species 1: LC = 1;

Fulica americana **LC**

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