

## Short Notes

### **An observation of aggressive nest defence in the Pitt Island Shag (*Stictocarbo featherstoni*)**

Between 30 August and 4 September 1995, MK and RDG observed the behaviour of Pitt Island (*Stictocarbo featherstoni*) and Chatham Island Shags (*Leucocarbo onslowi*) at Matarakau Point, Chatham Island. On the last day of observations RDG saw an incident of nest defence in the Pitt Island Shag. A single Pitt Island Shag landed almost on top of a nest at which a pair was present. When it landed the nesting pair did not respond with the threat display or by the male chasing the intruder away as would be expected in Pitt Island Shags (see Marchant & Higgins 1990). Instead, one of the pair clamped its bill round its neck and jerked and twisted the intruder. The second nesting bird then also grasped the intruder by the neck and they both continued to shake the intruder violently, which was suspended over the edge of the rock stack on which the nest was built. The attack persisted for about 30 s, ending only when the intruder managed to escape and tumble some 5-6 m, bouncing down the side of the rock stack and out of view. In a total of approximately 30 hours of observation, no other fights were seen. Most birds were in full nuptial plumage and sitting on nests, but no eggs were noticed.

The only agonistic behaviour observed in the Pitt Island Shag by the late G. van Tets (reported by Marchant & Higgins 1990) are the threat display and males chasing away intruding conspecifics. There are a number of records of fighting in the Phalacrocoracidae, although most refer to brief or unusual events. Van Tets (1965) mentions fighting in just two species of cormorants (i.e., *Phalacrocorax sensu* van Tets (1976) or Phalacrocoracinae *sensu* Siegel-Causey 1988): the Double-Crested Cormorant (*P. auritus*) and Great or Black Cormorant (*P. carbo*). Marchant & Higgins' (1990) review of the Australian, New Zealand and Antarctic phalacrocoracids describes fighting in just four species, the Pied Cormorant (*P. varius*), Little Cormorant (*P. melanoleucos*), Antarctic Shag (*L. bransfieldensis*) and Macquarie Island Shag (*L. purpurascens*). Johnsgard (1993) also records fighting in the Guanay Shag (*L. bougainvillii*) and Cape Shag (*L. capensis*). Berry (1976) described sustained "group fighting" in the latter species. Murphy (1936) observed fighting arising from nest defence in the South Georgian Shag (*L. georgianus*) and Snow (1966) saw brief fights involving beak pecking in the flightless Galapagos Cormorant (*P. harrisi*). Fights lasting up to 3 minutes between males gripping each others bills, with brief pecks added by females were observed by Williams (1942) in Brandt's Cormorant (*P. penicillatus*). None of these species is closely related to the Pitt Island Shag according to the classifications of van Tets (1976) and Siegel-Causey (1988). Of the seven species worldwide that these authors put in the genus *Stictocarbo*, we have been able, in a lengthy search of the literature, to find just two – the European Shag (*S. aristotelis*) and Pelagic Shag (*S. pelagicus*) – in which fighting has been recorded (Snow 1963, van Tets 1965).

No fighting has been reported in either of the species Siegel-Causey's (1988) phylogenetic tree placed closest to the Pitt Island Shag, the Spotted Shag (*S. punctatus*) and the Red-Legged Shag (*S. gaimardi*), even though behaviours are often shared amongst closely related species (van Tets 1965, Kennedy et al. 1996). Potts (1872) specifically noted an absence of fighting in the Spotted Shag. In approximately 20 years of observations of this species, Chris Lalas (pers. comm.) has never observed a sustained fight, although occasionally a resident bird was seen to immediately drive off a landing intruder. Siegel-Causey (1986) did not record fighting in his comprehensive description of behaviour in the Rock Shag (*S. magellanicus*), and Johnsgard (1993) referenced no extended behavioural descriptions in the last species in that genus, the Red-faced Shag (*S. urile*). Nevertheless, absence of evidence is not evidence of absence. Open conflict is often avoided through the use of ritualised agonistic displays, and so fighting is a rare event (van Tets 1965). Bernstein & Maxson (1982) observed just three fights in over 9000 bird-hours' observation of the Antarctic Shag, whereas Matthews & Fordham (1986) recorded just one fight in 19 months observing the Little Cormorant. Thus fighting in *Stictocarbo* may be more widespread – albeit rare – than generally recognised.

Snow's (1963) description of fighting in the European Shag differs in the method of fighting, its intensity and its location. The fights she observed were brief, away from the nest on rocks or at sea and involved pecking at the opponent's beak and grasping of the opponent's wing. At that point the grasped bird would flee and the fight would be over. The fighting we observed in the Pitt Island Shag most closely fits the description for that in the closely related trio of the Macquarie Island Shag, Antarctic Shag and South Georgian Shag, both in the grasping of the neck and the high level of violence. In the first species, fighting sometimes arose from the threat display used in nest defence (Marchant & Higgins 1990). In the second species, fighting was not seen after territories were established: males were only seen competing for nesting territory (Bernstein & Maxson 1982). Murphy's (1936) observation in the third species is closest to ours: "one pair attacked and bit the neck of a neighbour which had alighted upon their particular crag."

Presumably one of the Pitt Island Shags we observed fighting was female. Bernstein & Maxson (1982) never recorded a female Antarctic Shag fighting and Brothers (1985) refers only to male Macquarie Island Shags fighting. Snow (1963) did not mention the sex of the shags she saw fighting, but van Tets (1965) observed fighting between two female European Shags. Most fighting in the Pelecaniformes occurs between pairs of individuals of the same sex (van Tets 1965, Millener 1972). Again, the nest defence by the South Georgian Shag pair (Murphy 1936) matches our observations best.

Our observation is thus interesting in being the first record of fighting in the *punctatus-featherstoni-gaimardi* clade of *Stictocarbo* (*sensu* Siegel-Causey 1988), and differing in form from any described for other species in that genus, and the first record of which we are aware involving nest defence by a pair in *Stictocarbo*.

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