

# Fish-catching by a juvenile Powerful Owl *Ninox strenua*

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**Abstract.** The Powerful Owl *Ninox strenua* typically forages for arboreal prey; however, some authors have identified crustaceans in pellet material. This paper reports on an anecdotal observation of a juvenile Owl catching and consuming a fish. The observation was recorded at dusk in the upper reaches of tidal mangroves in one of the bushland remnants in Sydney, New South Wales, along the Georges River. The observation may constitute investigative 'play' behaviour by juvenile Owls.

## Introduction

Several owl species prey on fish, most notably seven species known as the 'fishing owls' in the genus *Bubo*, formerly separated into the genera *Ketupa* (Asian species) and *Scotopelia* (African species). This includes some of the world's larger owls, the Blakiston's Fish Owl *B. blakistoni* and Pel's Fishing Owl *Scotopelia peli*. The diets of these species comprise predominantly fish, frogs and crustaceans (Yamamoto 1988; Wu *et al.* 2006; Slaght & Surmach 2008), although most are overall generalists. They hunt mostly by snatching prey from the surface of water (Voronov & Zdorikov 1988; Sun *et al.* 2004; Dugintsov & Teryoshkin 2005; Wadatkar *et al.* 2014), but some also hunt by wading in shallow water (Yakovlev 1929).

The only owl species in Australia that has been known to hunt on or in water is the Barking Owl *Ninox connivens*. Although it predominantly forages for arboreal and terrestrial mammals, birds and insects (Kavanagh *et al.* 1995; Debus & Rose 2003; Barnes *et al.* 2005; Stanton 2011), some aquatic and semi-aquatic biota have been recognised in the diet. These include fish (Fleay 1968), water beetles (Kavanagh *et al.* 1995), waterbirds (Taylor *et al.* 2002; Schoenjahn *et al.* 2008; Debus 2009) and small Australian Water-rats *Hydromys chrysogaster* (Olsen 2011). There is also some evidence that the Southern Boobook *N. boobook*, which feeds mainly on insects and small mammals, also preys on semi-aquatic biota such as crustaceans (Calaby 1951; Rose 1996) and frogs (Green *et al.* 1986).

This paper describes an anecdotal observation of a juvenile Powerful Owl capturing and consuming a fish in an area of tidal mangroves.

## Observation

The observation was recorded at dusk on 19 January 2015 along the Georges River, Sydney, New South Wales. Mo *et al.* (2015) provided a general description of the area where the observation occurred (Figure 1). Three Powerful Owls, one adult and two juveniles, were located in the same tree above the mangroves. One juvenile Owl tore off pieces of bark (cf. Mo & Waterhouse

2015) and ingested portions of it before consuming leaves from a nearby branch. These plant materials were later identified in pellet material. The juvenile Owls descended to low-hanging branches before one flew to the ground to perch on a fallen branch (Figure 2, left) and apparently investigated the mangrove roots, performing sudden downward movements of the head (Figure 2, right). The area was inundated by 5 cm of water as the tide was coming in. After c. 5 minutes, the Owl used its beak to snatch a fish (Figure 3), which had not been present when the vicinity was walked through earlier. The fish was then grasped in the talons of the left foot and eaten in morsels torn by the beak (Figure 4), being completely consumed within 40 seconds. The Owl apparently investigated the water further for at least 10 seconds before flying away.

## Discussion

The diet of the Powerful Owl has been well studied and consistently comprises primarily arboreal prey (Seebeck 1976; Tilley 1982; Traill 1993; Lavazanian *et al.* 1994; Pavey *et al.* 1994; Pavey 1995; McNabb 1996; Schulz 1997; Wallis *et al.* 1998; Webster *et al.* 1999; Kavanagh 2002; Menkhorst *et al.* 2005; Cooke *et al.* 2006; Fitzsimons & Rose 2010; Olsen *et al.* 2011; Bilney 2013; Mo & Waterhouse 2015). Three arboreal mammals, the Common Ringtail Possum *Pseudocheirus peregrinus*, Sugar Glider *Petaurus breviceps* and Greater Glider *Petauroides volans*, are frequently recorded as staple prey species (Higgins 1999); hence the Powerful Owl is considered a canopy forager. There are occasional reports of terrestrial prey such as small macropods (Hyem 1979; Debus & Chafer 1994; Kavanagh 1997; Schulz 1997), Cats *Felis catus* (Chafer 1992) and lagomorphs (Seebeck 1976; Tilley 1982; Chafer 1992), but these form a minor component of the diet. Even fewer records exist for semi-aquatic biota; Kavanagh (1997) detected two individual crustaceans, possibly freshwater crayfish, in pellet material, but suspected that samples were misattributed. Since then, Olsen *et al.* (2011) have located one crayfish *Cherax* sp. from pellet material.

The observation described here is considered an anecdotal observation of fish-catching in the Powerful Owl. Historically, new or unusual food items consumed by





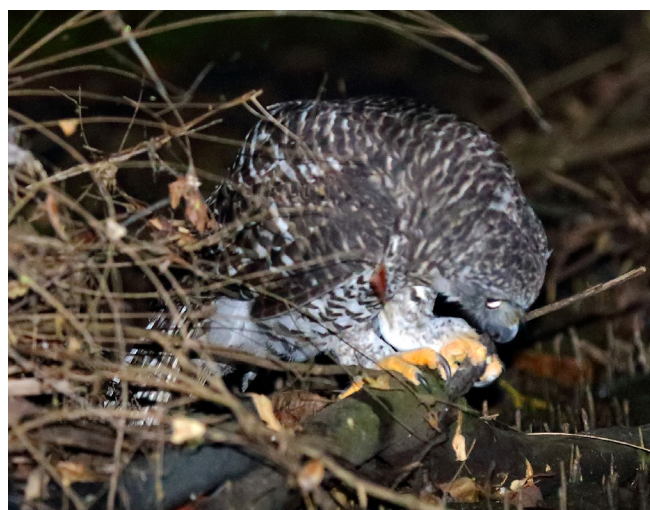
**Figure 1.** The upper reaches of the tidal mangroves where the Powerful Owls reside when not associated with the nesting hollow, and the site of the fish-catching observation along the Georges River, Sydney, New South Wales. Photo: Peter & Antonia Hayler



**Figure 2.** The juvenile Powerful Owl landing on a fallen branch (left), and investigating the water surface (right). Photos: Peter & Antonia Hayler



**Figure 3.** The Powerful Owl picking up a fish with its beak (inset: close-up of fish). Photo: Peter & Antonia Hayler



**Figure 4.** The Powerful Owl grasping the fish in its left talons to consume. Photo: Peter & Antonia Hayler



Australian owls have been detected through pellet analysis (Van Dyck & Gibbons 1980; Kavanagh 1997; Olsen *et al.* 2011), a more efficient method of assessing dietary material in terms of data quantity. Pellet collection was impeded at the time of the present observation as the roost-site received tidal inundation. Prey items can also be recorded by observing them held in Owls' talons during roosting, but this method is biased toward larger prey. Small prey is not likely to be detected by these means, and would more likely be consumed shortly after capture, as was the case in our observation. Hunting behaviours are rarely witnessed as the Powerful Owl is nocturnal and elusive. In contrast, the Owls reported here were habituated to the presence of people, making them more accessible to viewing.

Juvenile Powerful Owls typically engage in investigative 'play' behaviour during their development (McNabb 1996; Mo & Waterhouse 2015), which apparently contributes to honing their hunting skills. The observation reported here is most likely a random act of play by the juvenile Owls, as we also observed them handling artificial materials, including clothing and cooler bags around the same time.

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## References

- Barnes, C.P., Rose, A.B. & Debus, S.J.S. (2005). Breeding behaviour and diet of a family of Barking Owls *Ninox connivens* in south-eastern Queensland. *Australian Field Ornithology* **22**, 182–195.
- Bilney, R.J. (2013). Geographic variation in the diet of the Powerful Owl (*Ninox strenua*) at a local scale. *Australian Journal of Zoology* **61**, 372–377.
- Calaby, J.H. (1951). Notes on the Little Eagle; with particular reference to rabbit predation. *Emu* **51**, 33–56.
- Chafer, C.J. (1992). Observations of the Powerful Owl *Ninox strenua* in the Illawarra and Shoalhaven regions of New South Wales. *Australian Bird Watcher* **14**, 289–300.
- Cooke, R., Wallis, R., Hogan, F., White, J. & Webster, A. (2006). The diet of the Powerful Owls (*Ninox strenua*) and prey availability in a continuum of habitats from disturbed urban fringe to protected forest environments in south-eastern Australia. *Wildlife Research* **33**, 199–206.
- Debus, S. (2009). *The Owls of Australia: A Field Guide to Australian Night Birds*. Envirobook, Sydney.
- Debus, S.J.S. & Chafer, C.J. (1994). The Powerful Owl (*Ninox strenua*) in New South Wales. *Australian Birds* **28**, 21–38.
- Debus, S.J.S. & Rose, A.B. (2003). Diet of a Barking Owl *Ninox connivens* in the Channel Country of south-western Queensland. *Corella* **27**, 18–19.
- Dugintsov, V.A. & Teryoshkin, V.A. (2005). Blakiston's Fish Owls in the Upper Pri-Amur. In: Volkov, S.V., Morozov, V.V. & Sharikov, A.V. (Eds). *Owls of Northern Eurasia*, pp. 421–423. Russian Bird Conservation Union, Moscow.
- Fitzsimons, J.A. & Rose, A.B. (2010). Diet of Powerful Owls *Ninox strenua* in inner city Melbourne parks, Victoria. *Australian Field Ornithology* **27**, 76–80.
- Fleay, D. (1968). *Nightwatchmen of Bush and Plain*. Jacaranda Press, Brisbane.
- Green, R.H., Rainbird, J.L. & McQuillan, P.B. (1986). Food of the Southern Boobook *Ninox novaeseelandiae*. *Tasmanian Naturalist* **86**, 1–3.
- Higgins, P.J. (Ed.) (1999). *Handbook of Australian, New Zealand & Antarctic Birds, Volume 4: Parrots to Dollarbird*. Oxford University Press, Melbourne.
- Hyem, E.L. (1979). Observations on owls in the Upper Manning River District, N.S.W. *Corella* **3**, 17–25.
- Kavanagh, R.P. (1997). Ecology and Management of Large Forest Owls in South-eastern Australia. PhD thesis. University of Sydney, Sydney.
- Kavanagh, R.P. (2002). Comparative diets of the Powerful Owl (*Ninox strenua*), Sooty Owl (*Tyto tenebricosa*) and Masked Owl (*Tyto novaehollandiae*) in southeastern Australia. In: Newton, I., Kavanagh, R., Olsen, J. & Taylor, I. (Eds). *Ecology and Conservation of Owls*, pp. 175–191. CSIRO Publishing, Melbourne.
- Kavanagh, R.P., Debus, S.J.S., Rose, A.B. & Turner, R.J. (1995). Diet and habitat of the Barking Owl *Ninox connivens* in New South Wales. *Australian Bird Watcher* **16**, 137–144.
- Lavazanian, E., Wallis, R. & Webster, A. (1994). Diet of Powerful Owls (*Ninox strenua*) living near Melbourne, Victoria. *Wildlife Research* **21**, 643–646.
- McNabb, E. (1996). Observations on the biology of the Powerful Owl in southern Victoria. *Australian Bird Watcher* **16**, 267–295.
- Menkhurst, P., Buckingham, R. & Loyn, R. (2005). Diet of the Powerful Owl roosting in the Royal Botanic Gardens, central Melbourne. *Australian Field Ornithology* **22**, 83–87.
- Mo, M. & Waterhouse, D.R. (2015). Development of independence in Powerful Owl *Ninox strenua* fledglings in suburban Sydney. *Australian Field Ornithology* **32**, 143–153.
- Mo, M., Hayler, P. & Hayler, A. (2015). Male combat in the Powerful Owl *Ninox strenua*. *Australian Field Ornithology* **32**, 190–200.
- Olsen, J. (2011). *Australian High Country Owls*. CSIRO Publishing, Melbourne.
- Olsen, J., Judge, D., Trost, S., Rose, A.B. & Flowers, G. (2011). Powerful Owl *Ninox strenua* diet from two sites in the Australian Capital Territory. *Australian Field Ornithology* **28**, 120–128.
- Pavey, C.R. (1995). Food of the Powerful Owl (*Ninox strenua*) in suburban Brisbane, Queensland. *Emu* **95**, 231–232.
- Pavey, C.R., Smyth, A.K. & Mathieson, M.T. (1994). The breeding season diet of the Powerful Owl *Ninox strenua* at Brisbane, Queensland. *Emu* **94**, 278–284.
- Rose, A.B. (1996). Notes on the diet of the Southern Boobook *Ninox novaeseelandiae* in New South Wales. *Australian Bird Watcher* **16**, 339–343.
- Schoenjahn, J., Kavanagh, R., Stanton, M. & Weber, U. (2008). Barking Owls holding partly eaten prey at diurnal roosts. *Australian Field Ornithology* **25**, 36–39.
- Schulz, M. (1997). The diet of the Powerful Owl *Ninox strenua* in the Rockhampton area. *Emu* **97**, 326–329.
- Seebeck, J.H. (1976). The diet of the Powerful Owl *Ninox strenua* in western Victoria. *Emu* **76**, 167–170.
- Slaght, J.C. & Surmach, S.G. (2008). Biology and conservation of Blakiston's Fish-owls (*Ketupa blakistoni*) in Russia: A review of the primary literature and an assessment of the secondary literature. *Journal of Raptor Research* **42**, 29–37.
- Stanton, M.A. (2011). Barking Owl Diet in the Pilliga Forests of Northern New South Wales. MSc thesis. University of New England, Armidale, NSW.
- Sun, Y., Wu, H. & Wang, Y. (2004). Tawny Fish-owl predation at fish farms in Taiwan. *Journal of Raptor Research* **38**, 326–333.
- Taylor, I.R., Kirsten, I. & Peake, P. (2002). Habitat, breeding and conservation of the Barking Owl *Ninox connivens* in northeastern Victoria, Australia. In: Newton, I., Kavanagh, R., Olsen, J. & Taylor, I. (Eds). *Ecology and Conservation of Owls*, pp. 117–124. CSIRO Publishing, Melbourne.
- Tilley, S. (1982). The diet of the Powerful Owl, *Ninox strenua*, in Victoria. *Australian Wildlife Research* **9**, 157–175.
- Trill, B. (1993). The diet and movement of a pair of Powerful Owls *Ninox strenua* dry eucalypt forest. In: Olsen, P.D. (Ed.). *Australian Raptor Studies*, pp. 155–159. Australasian Raptor Association, Royal Australasian Ornithology Union, Melbourne.
- Van Dyck, S. & Gibbons, D. (1980). Tuan predation by Powerful Owls. *Victorian Naturalist* **97**, 58–63.

- Voronov, G.A. & Zdorikov, A.I. (1988). Blakiston's Fish Owl *Ketupa blakistoni blakistoni* Seeböhm on Kunashir Island. In: Litvinenko, N.M. (Ed.). *Rare Birds of the Russian Far East and their Protection*, pp. 23–28. Dalnevostochnoe Otdeleniye Akademii Nauk SSSR, Vladivostok, Russia.
- Wadatkar, J., Zade, V., Patki, V. & Talmale, S. (2014). Diet composition of Brown-fish Owl (*Ketupa zeylonensis*) from Melghat Tiger Reserve, India. *World Journal of Zoology* **9**, 121–124.
- Wallis, R., Cooke, R. & Webster, A. (1998). Diet of Powerful Owls *Ninox strenua* in the Yarra Valley, Victoria. *Australian Bird Watcher* **17**, 395–397.
- Webster, A., Cooke, R., Jameson, G. & Wallis, R. (1999). Diet, roosts and breeding of Powerful Owls *Ninox strenua* in a disturbed, urban environment: A case for cannibalism? Or a case for infanticide? *Emu* **99**, 80–83.
- Wu, H., Sun, Y., Wang, Y. & Tseng, Y. (2006). Food habits of Tawny Fish-owls in Sakatang stream, Taiwan. *Journal of Raptor Research* **40**, 111–119.
- Yakovlev, B.P. (1929). *Animal World of Manchuria: Birds*. Obshchestvo Izucheniya Manchzhurskovo Kraiya, Kharbin, China.
- Yamamoto, S. (1988). The hunting techniques of Blakiston's Fish-Owl (*Ketupa blakistoni*) in Hokkaido. *Memoirs of Preparative Office Nemuro Municipal Museum* **7**, 15–28.

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