

Consumption of Dead Bald-faced Hornets by Blue Jays in Winter

Doug Tozer

On 15 December 2000, at 1430h, within a poplar-pine mixed forest near Dwight, *Muskoka* (45° 19' N, 78° 58' W), I observed a Blue Jay (*Cyanocitta cristata*) feeding on the contents of a Bald-faced Hornet (*Dolichovespula maculata*) nest for a duration of about 15 minutes. The jay hung upside down on the side of the nest, and retrieved dead hornets from inside by inserting its head into a hole in the bottom of the nest. At times, the bird's head and most of its shoulders disappeared inside the approximately 15 cm diameter hole, which was the entrance used during the summer by the hornets that had been enlarged by the jay (Figure 1). The jay also hovered in midair below the hornet nest, where it pulled hornets from within through the hole. On three occasions, it was possible to identify what the jay was consuming, as it flew to a nearby branch to swallow its food: twice, adult hornets, and once, a whitish, plump object that was likely a larva. Later, on 11 March 2001, at 1330h, two Blue Jays were observed feeding at the same hornet nest in a similar manner to the December observation described above, suggesting that the hornet nest may have been a source of food for Blue Jays

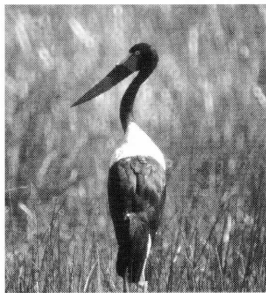
throughout the winter.

The hornet nest was of typical construction for Bald-faced Hornets, consisting of a large, globular structure composed of paper-like material (Borror et al. 1989), suspended below the lowest branch of a large Eastern White Pine (*Pinus strobus*). The hornet nest was 2.54 m (measured to the base of the nest) above the ground, and 2.13 m above the snow surface (measured on 15 December 2000), and 2.74 m from the main trunk of the tree in which it hung. It measured 21.6 cm at its widest point, and 27.9 cm at its greatest height. Observations were made using binoculars from within a nearby building, located approximately 40 m away. The weather conditions were overcast and -4°C on 15 December 2000 and clear and warm (temperature not recorded) on 11 March 2001.

Discussion

The Bald-faced Hornet is a member of the Hymenoptera (an order of insects containing the sawflies, parasitic wasps, ants, wasps, and bees) (Borror et al. 1989), has a distinctive black and pale yellow pattern on its body (Borror and White 1970), and is renowned for its ferocious disposition while defending

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its large, exposed paper nests (Macnamara 1918). It has three castes: queens (fertile females), workers (infertile daughters of queens), and drones (males) (Borror et al. 1989). Queens overwinter some distance away from the summer nest, hibernating in protected places such as cracks or crevices in tree trunks (Macnamara 1918). Workers and drones, along with the last larvae and pupae of the summer, die inside the nest in autumn with the onset of cold temperatures (Macnamara 1918), which is why there were dead adult and larval hornets for the Blue Jays to consume within the nest I observed. Queens emerge from hibernacula in spring and build new nests in which they lay eggs fertilized with sperm from matings that took place the previous fall (Borror and White 1970, Borror et al. 1989). Workers hatch from these eggs, and new colonies are formed (Macnamara 1918).

Blue Jays belong to the family Corvidae, its members being well-known for their opportunistic and often clever feeding habits (Savage 1995). Blue Jays regularly eat "arthropods, acorns and other nuts, soft fruits, seeds, and small vertebrates" (Tarvin and Woolfenden 1999). Their diet consists mostly of vegetable matter, but they are known to prey on diverse vertebrate prey such as bird eggs and young, fishes, frogs, mice, and on one occasion even a snake (Langevin and Dauphin 1996). This species sometimes takes large, fly-



Figure 1: Bald-faced Hornet nest from below, showing entrance that has been enlarged by foraging Blue Jays, near Dwight, Muskoka, December 2000. Photo by Doug Tozer.

ing insects such as dragonflies and cicadas on the wing, hawking them flycatcher-like in midair and manipulating them at a perch prior to consumption (Tarvin and Woolfenden 1999).

Reports in the literature of Blue Jay consumption of Hymenoptera are scant. However, Blue Jays have been reported to capture and kill adult wasps around active nests during warm months, but apparently these birds did not consume their prey, and instead discarded the wasps without eating them (Tarvin and Woolfenden 1999). In contrast, Shepard (1979) observed a Blue Jay in June in central Oklahoma, USA, that appeared to capture and consume adult *Polistes* (a genus of wasps within the paper wasp sub-

family that is closely related to yellow jackets and hornets), which it caught on the wing near a wasp nest under the eave of a building and consumed at a nearby perch. The same bird was also reported eventually to break the small wasp nest free from its attachment, carry it to a nearby perch, and consume the larvae from within while holding the nest in its foot (Shepard 1979). The Blue Jay described by Shepard (1979) “would hang over, peering intently up under the eaves. Several times it dropped from the trough, flew up under the eaves, and hovered there briefly”, which is quite similar to the manner in which the Blue Jays described in this note foraged at the Dwight hornet nest. It is also interesting to note that *Polistes*

wasps, the type observed by Shepard (1979), characteristically build quite small nests with no outer covering (Borror and White 1970). In contrast, Bald-faced Hornets build much larger, covered nests, up to 30 cm in diameter (Borror et al. 1989), that presumably require more energy in order for a bird the size of a Blue Jay to gain access. In fact, closer examination of the Dwight hornet nest during April 2001 revealed uneaten adult and larval hornets in the upper third of the nest, which the Blue Jays either could not reach, or did not bother to reach through the hole at the bottom of the nest.

This note reports on yet another example of the adaptable foraging behaviour of Blue Jays. A review of the literature failed to turn up any references to consumption of dead adult and larval hornets by this species. However, Blue Jays have been reported to consume live individuals of *Polistes* during summer (Shepard 1979). This note represents the first documentation of consumption of dead Bald-faced Hornets from a large nest during winter.

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