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## COOPER'S HAWK NEST SITE CHARACTERISTICS IN THE PINEWOODS REGION

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Early accounts describe the Cooper's Hawk (*Accipiter cooperi*) as a species in decline in much of North America during the early twentieth century (Bent 1937), particularly when in close proximity to humans (Eaton 1914). This decreasing population trend continued to be recognized later in the century in both Texas (Oberholser 1974) and Louisiana (Lowery 1974). Shooting and trapping during the first half of the 1900s, and pesticide use (especially DDT) after World War II are suggested as primary causes of the decline (Henny and Wight 1972, Bednarz et al. 1990). The Migratory Bird Treaty Act of 1972 and the ban on DDT during that same year, along with changes in human behaviors and attitudes have guided Cooper's Hawk populations toward recovery in areas negatively impacted (Bednarz et al. 1990, Johnsgard 1990). The overall North American population has increased substantially since the 1990s (Curtis et al. 2006), and the species is increasing as a breeder in parts of Texas, particularly in urban areas (Lockwood and Freeman 2004).

Cooper's Hawks nest in a variety of habitats in Texas including riparian woodlands, live oak mottes, pine-juniper-oak scrub, mixed pine-hardwood forest, and urban areas (Lockwood and Freeman 2004, Tweit 2007, RRS pers. obs.). The species is a scarce summer resident in the Pineywoods of eastern Texas (Wolf et al. 2001), and few confirmed breeding records are known from the region. Oberholser (1974) cited breeding records from Harrison County (eggs) and Upshur County (sight), but no dates are given. Texas Breeding Bird Atlas data provide one confirmed (Polk) and three probable (Angelina, two San Augustine) breeding

records for counties within the Pineywoods during the 1987-1991 breeding seasons (Tweit 2007). The Northeast Texas Field Ornithologists' archives provided only a single report of breeding Cooper's Hawks from the northeastern Pineywoods (P. Barnes pers. comm.) in Harrison County (11-23 May 1996) where a female was observed by G. G. Luneau and others on a nest containing either eggs or very small young.

Archives of the Pineywoods Audubon Society contain three reports of Cooper's Hawk breeding activity (D. E. Wolf pers. comm.). The first was an observation in Nacogdoches County by C. D. Fisher of an adult and possible young birds heard nearby on 12 June 1974. The second report was a nesting pair near Garrison, Nacogdoches County during May 2004. A pair returned to the Garrison site in 2005, but no nest was found. The third sighting was from Angelina County where L. Debetaz located a nesting pair along a riparian nature trail in Lufkin on 28 March 2010. This pair nested successfully with one fledgling seen near the nest on 4 June 2010.

At the southern edge of the Pineywoods, an active Cooper's Hawk nest discovered at the Houston Arboretum and Nature Center (HANC), Harris County on 22 March 2008, fledged three young.

Here we describe the three most recently reported Cooper's Hawk nest sites (Table 1) and surrounding habitat (Table 2) for Garrison (31° 49' 18.2" N, 94° 31' 24.3" W), HANC (29° 45' 53.9" N, 95° 27' 13.2" W), and Lufkin (31° 18' 58.5" N, 94° 43' 29.1" W), for the Pineywoods. The HANC and Lufkin nests were located in large woodlots well within the city limits, providing additional evidence of expansion into urban areas (Lockwood and

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Table 1. Nest tree, nest height, and habitat measurements at three Cooper's Hawk nests in the Pineywoods region of eastern Texas.

Nest Tree/Habitat Variable	Nest A	Nest B	Nest C
Nest tree species	southern red oak <sup>1</sup>	loblolly pine <sup>1</sup>	loblolly pine <sup>1</sup>
Nest tree DBH <sup>2</sup> (cm)	70.5	34.0	34.0
Nest tree height (m)	20.1	22.5	23.0
Height of nest (m)	10.2	16.8	17.2
Forest canopy closure <sup>3</sup> (%)	32.0	91.8	90.5
Pine canopy BA <sup>4</sup> (m <sup>2</sup> /ha)	0.0	8.5	14.0
Hardwood canopy BA (m <sup>2</sup> /ha)	5.0	6.5	5.0
Pine mid-story BA (m <sup>2</sup> /ha)	0.0	0.0	1.0
Hardwood mid-story BA (m <sup>2</sup> /ha)	0.0	10.0	2.0

A Near the town of Garrison, Nacogdoches County.

B Houston Arboretum and Nature Center, Harris County.

C Azalea Trail, City of Lufkin, Angelina County.

<sup>1</sup> Southern red oak (*Quercus falcata*), loblolly pine (*Pinus taeda*).

<sup>2</sup> DBH = Diameter at Breast Height.

<sup>3</sup> Mean of four measurements at cardinal directions 15 m from the nest tree.

<sup>4</sup> BA = Basal Area.

Freeman 2004). The Garrison nest was located in a rural environment. The specific nest site was a large southern red oak (*Quercus falcata*) located near the edge of a pasture and only 77 m from a house.

Though confirmed reports of nesting in the Texas Pineywoods are scarce, Cooper's Hawks have been

observed during the breeding season with some consistency and are probably more common as a breeder in the region than the few confirmed nesting observations suggest (Tweit 2007). The species' secretive behavior makes locating nests especially difficult in the heavily wooded Pineywoods.

Table 2. Percentage and number of hectares of each habitat type within a 1-km radius from each of three Cooper's Hawk nests in the Pineywoods region of eastern Texas.

Habitat Type	Nest A	Nest B	Nest C
Mature forest <sup>1</sup>	44.7 (140 ha)	52.9 (166 ha)	21.7 (68 ha)
Pine plantation <sup>2</sup>	17.6 (55 ha)	0.0 (0 ha)	0.0 (0 ha)
Mixed mature forest and pine plantation	11.0 (35 ha)	0.0 (0 ha)	0.0 (0 ha)
Clear-cut, pasture, field	25.3 (79 ha)	2.8 (9 ha)	3.5 (11 ha)
Urban with trees	0.0 (0 ha)	29.1 (91 ha)	43.5 (137 ha)
Structures and no trees <sup>3</sup>	0.6 (2 ha)	12.9 (41 ha)	31.1 (97 ha)
Surface water <sup>4</sup>	0.8 (3 ha)	2.3 (7 ha)	0.2 (1 ha)

A Near the town of Garrison, Nacogdoches County.

B Houston Arboretum and Nature Center, Harris County.

C Azalea Trail, City of Lufkin, Angelina County.

<sup>1</sup> Forest stands  $\geq$  50 years of age.

<sup>2</sup> Pine stands 10-30 years of age. Stands < 10 years old were included with clear-cuts.

<sup>3</sup> Large buildings, parking lots, chicken houses, etc. (urban or rural).

<sup>4</sup> Lakes, ponds, and rivers (small streams not included).

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## NESTING BY COMMON GROUND-DOVE AT FORT HOOD MILITARY RESERVATION

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The Common Ground-Dove (*Columbina passerina*) occurs across the southern United States and south through Mexico and Central America into northern South America to Ecuador and Brazil (American Ornithologists' Union 1998). The range

in Texas covers approximately the southern third of the state including the coastal prairies, brush country, and southern Trans-Pecos (Lockwood and Freeman 2004). Outside of this region, Kostecke (2006) reported Common Ground-Doves occur

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