

Aggressive behavior of Three-toed Woodpeckers (*Picoides tridactylus*) towards other woodpeckers

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We observed four aggressive interactions between Three-toed (*Picoides tridactylus*) and other woodpeckers. Three occurred between Three-toed and Hairy woodpeckers (*Picoides villosus*) and one between a Three-toed Woodpecker and a pair of Northern Flickers (*Colaptes auratus*). During each bout, the Three-toed Woodpecker responded to the presence of other woodpeckers by drumming or dashing at them. In all situations, Three-toed Woodpeckers appeared to be moderately aggressive when in close proximity to other *Picidae*.

Social dominance hierarchies between various *Picidae* species are seldom documented. In parts of high elevation spruce-fir forests of the Rocky Mountains, Three-toed Woodpecker (*Picoides tridactylus*) distribution overlaps those of both the Hairy Woodpecker (*Picoides villosus*) and Northern Flicker (*Colaptes auratus*). Leonard (2001) documented Hairy and Three-toed Woodpeckers charging at each other in aggressive interactions, but did not report which bird was dominant socially. In Europe, Three-toed Woodpeckers have been documented to successfully drive off Great Spotted Woodpeckers (*Dendrocopos major*) from the immediate vicinity of their nest during the breeding season (Cramp 1985). Great Spotted Woodpeckers are the ecological equivalent of Hairy Woodpeckers and have a comparable body size.

Three-toed Woodpeckers are known to be behaviorally subordinate to Black-backed Woodpeckers (*Picoides arcticus*), often being displaced by them where the two species are sympatric (Dixon and Saab 2000). Social dominance between Black-backed Woodpeckers and Hairy Woodpeckers is more variable, with aggressive encounters resulting in displacement or forced movement of either species (Dixon and Saab 2000). Northern Flickers have been reported to forage near Three-toed Woodpeckers without interactions (Leonard 2001).

Following are four independent observations made on the Fishlake National Forest in south-central Utah, from September 2000 to July 2001, where Three-toed Woodpeckers demonstrated aggressive responses toward other woodpeckers.

On 16 September 2000, we observed a female Three-toed Woodpecker feeding on an Engelmann spruce tree beginning at 07:52. At 08:02, a Hairy Woodpecker flew to the same tree and landed 1 m beneath the feeding Three-toed Woodpecker and began moving up the tree closer to it. At 08:03 the Three-toed Woodpecker flew from the spruce to an adjacent dead subalpine fir tree and began to drum, after which the Hairy Woodpecker immediately left the area. In this and subsequent interactions where drumming was used agonistically, the drumming itself may have constituted the competitive interaction.

On 28 June 2001 at 08:20, we came within 75 m of a known Hairy Woodpecker nest. After 3 minutes at our point count station, we broadcast a drumming sequence of a Three-toed Woodpecker. Within a few seconds a Three-toed Woodpecker flew towards us, landed on a tree 60 m away, and began drumming. This appeared to draw the attention of the Hairy Woodpecker, and it flew towards the Three-toed Woodpecker, landing beneath it on the same tree. The Three-toed Woodpecker hopped down the tree and dove towards the Hairy Woodpecker, which immediately flew from the tree, after which the Three-toed Woodpecker also flew away.

On 19 July 2001, a female Three-toed Woodpecker was foraging on a dying beetle-infested Engelmann spruce tree 17 m from a nest cavity. The Three-toed Woodpecker was pecking 15 m above the ground when a female Hairy Woodpecker landed on a branch 2.5 m from where she fed. The Three-toed Woodpecker swooped toward the Hairy Woodpecker and came within 0.1 m of it. The Hairy Woodpecker immediately took flight and flew to an adjacent snag 12 m away.

On 27 July 2001 at 09:30, I broadcast a Three-toed Woodpecker drumming call, attracting a female Three-toed Woodpecker who flew to a snag 26 m from me. Then two Northern Flickers that previously were in the area flew and landed on the snag above the Three-toed Woodpecker. The Three-toed Woodpecker moved up the trunk toward the Northern Flickers, as they called at it. The Three-toed Woodpecker continued to move closer to the Northern Flickers until the one nearest it flew away. Within 10 seconds, the Three-toed Woodpecker flew off, leaving one Northern Flicker on the snag. This individual Northern Flicker appeared to be a juvenile. It spent the entire ordeal perched relatively still on a branch 3-4 m away from the other birds.

These observations indicate that various *Picidae* do not peacefully coexist, although it is unclear which woodpecker species are socially dominant. Three-toed Woodpeckers are smaller than both Hairy Woodpeckers and Northern Flickers and they typically are less aggressive towards humans. Three-toed Woodpeckers generally call less than other *Picidae*, using drumming to a greater extent than other woodpeckers (Leonard 2001). This greater propensity to use drumming rather than vocalizations when encountering other birds may cause them to appear more socially dominant than would be predicted by their body size and overall temperament.

LITERATURE CITED

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