

### The Relationship Between *Hylocichla* and *Catharus* (Turdinae)

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The relationship of the Wood Thrush (*Hylocichla mustelina*) to the *Catharus* thrushes has been debated for well over 30 years (Table 1). Dorst (1950: 222) rejected the genus *Hylocichla* and included the species then in that group with *Turdus*. He called this the *T. mustelinus* group, which, with *Hylocichla mustelina*, included the North American *Catharus* thrushes, *C. guttatus*, *C. fuscescens*, *C. minimus*, and *C. ustulatus* (A.O.U. 1983). His decision was based largely on the superficial resemblance between the Wood Thrush and the European Song Thrush (*Turdus philomelos*). As Ripley (1952: 17) pointed out, these similarities are not compelling to those who are familiar with the different behaviors of the two species.

Ripley (1952) further stated that the entire group of hylocichlids, which at the time included the North American *Catharus* thrushes, should be considered congeneric with the Neotropical group of *Catharus* thrushes, and that the older name of *Catharus* should be used for the entire group. He based his reasoning on the similarity in habits and body proportions of the members of the two groups.

Dilger (1956a-c) made a strong case for the separation of *Hylocichla mustelina* from the four species of North American *Catharus* thrushes. His opinion was that it should remain provisionally the type species of its own monotypic genus, but that further work would probably ally it with the genus *Turdus* (Dilger 1956c). This conclusion was based primarily on behavioral postures and calls that distinguish the Wood Thrush from the four *Catharus* species (*fuscescens*, *guttatus*, *ustulatus*, and *minimus*) on the breeding grounds.

In the rain forest of southern Veracruz, Mexico, Wood Thrushes holding individual subsistence territories during the winter months use two of the aggressive behavioral postures and a call note that Dilger (1956a, b) found conspicuously absent in the species on its breeding grounds in New York state. The "upward" and "horizontal stretch" postures are both present on these wintering grounds, as is the "zeep" vocalization (Rappole and Warner 1980, Winker 1988; terminology follows Dilger 1956a). In addition to these behaviors, Willis (1966: 199) recorded in *H. mustelina* both a "sleeked posture" in a subordinate bird and a foot-quivering display on Barro Colorado Island, Panama. Neither of these behaviors was noted for the species by Dilger (1956a, b) on the breeding grounds. The presence and absence of these displays varies in *H. mustelina* and the four Nearctic *Catharus* thrushes (Table 2). The absence of the "zeep"

vocalization and the "upward," "horizontal stretch," and foot-quivering displays in *H. mustelina* caused Dilger to consider the species separate from the rest of the Nearctic group. It appears, however, that most of these behavioral traits are held in common (Table 2), and that continued separation on a behavioral basis is no longer justified.

In placing *Hylocichla mustelina* closer to the genus *Turdus* than to *Catharus*, Dilger listed only one display held in common between the American Robin (*Turdus migratorius*) and the Wood Thrush, and mentioned that these species both use mud in nest construction and vigorously defend their nests. The four *Catharus* species typically do neither. It is now recognized that social demeanor can be widely different in close relatives (McKinney 1978: 7). Dilger treated both body proportion and foraging differences between *Turdus* and *Hylocichla* lightly. His belief that the Wood Thrush was more closely allied with *Turdus* was supported by Bourns (1967), who, using serological data, placed *H. mustelina* very close to *T. migratorius*.

In contrast, Hendrickson and Yow (1973), using electrophoresis on blood proteins, concluded that *H. mustelina* is closely allied with the *Catharus* thrushes and quite distant from *T. migratorius*. Gibson et al. (1976) criticized Bourns (1967) and Hendrickson and Yow (1973), citing the unproved value of each of the two methods in showing evolutionary change and the incompleteness of their data bases. Gibson et al. (1976) compared 49 skeletal characters and found that the Wood Thrush formed a distinct group from both *Catharus* and *Turdus*. They concluded that the Wood Thrush should retain its status as *Hylocichla*. We question whether the degree of distinctiveness warrants such a conclusion, however.

It is apparent from Gibson et al.'s (1976) principal components analysis and bivariate scatter plot that, although *H. mustelina* appears unique when compared with the Nearctic *Catharus* species, its relative distance from that group is no greater than the distance between the Song Thrush and the Eurasian Blackbird (*T. merula*) in the same comparison. We question the separation of the *Catharus-Hylocichla* group, obviously closely related, based solely on the lack of intermediate forms. Other characteristics should be assessed in such a decision.

We found that the display repertoires of *Hylocichla* and *Catharus* were similar. Electromorph analysis (Avisé et al. 1980) indicates that the relationship is close phenetically and cladistically, as well. Avisé et al.

TABLE 1. Summary of work on the generic alignment of the Wood Thrush.

Author(s)	Alignment	Based on
Dorst (1950)	<i>Turdus</i>	External resemblance
Ripley (1952)	<i>Catharus</i>	Similarities in proportions and habits
Dilger (1956a-c)	<i>Hylocichla-Turdus</i>	Behavioral differences from <i>Catharus</i>
Bourns (1967)	<i>Turdus</i>	Serological work
Hendrickson and Yow (1973)	<i>Catharus</i>	Blood proteins
Gibson et al. (1976)	<i>Hylocichla</i>	Osteological work
Avise et al. (1980)	<i>Catharus-Hylocichla</i>	Electromorphic proteins
Corbin (in press)	<i>Catharus</i>	Statistical treatment of the data of Avise et al. (1980)

(1980) used a much larger data base than Hendrickson and Yow (1973). They concluded that "data are now overwhelming in support of close evolutionary relationships between *Hylocichla mustelina* and the *Catharus* species examined" (Avise et al. 1980). They did not comment on whether *Hylocichla* should retain separate generic status. Corbin (in press) reanalyzed these data with a multivariate statistical technique called Taxon Cluster Analysis. He found a very strong relationship between the two genera and concluded that "the monotypic genus *Hylocichla* should be merged with *Catharus*."

We believe that *Hylocichla mustelina* is not unique enough to warrant separate generic status. The Wood Thrush should be considered *Catharus mustelinus*, and the genus *Hylocichla* (Baird 1864) should be laid to rest with the other thrush genera abandoned since their conception in the late 1800's (listed by Dorst 1950: 217-218).

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TABLE 2. Displays of *Hylocichla* on wintering and breeding grounds compared with those of *Catharus* on the breeding grounds.

Behavior <sup>a</sup>	<i>Hylocichla</i>		<i>Catharus</i>
	Winter <sup>b</sup>	Breeding <sup>c</sup>	Breeding <sup>c</sup>
Wing/tail flicking	x	x	x
Crest raising	x	x	—
Spread	x	x	—
Horizontal fluff	x	x	—
Horizontal stretch	x	—	x
Upward	x	—	x
"Zeep" call	x	—	x
Foot quivering	x <sup>d</sup>	—	x
Sleeked posture <sup>d</sup>	x	—	—

<sup>a</sup> Dilger (1956a).

<sup>b</sup> Rappole and Warner (1980), Winker (1988).

<sup>c</sup> Dilger (1956a).

<sup>d</sup> Willis (1966).

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