

## SONGS OF MACGILLIVRAY'S AND TOWNSEND'S WARBLERS IN COASTAL BRITISH COLUMBIA

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Intraspecific variation in bird song has received considerable investigation in recent years (e.g. Borror 1961, Armstrong 1973, Falls and Brooks 1975, Adkisson and Conner 1978, Lein 1978). In this note, I comment on the use of two distinct song types by each of two species of wood warbler (Parulidae) on Vancouver Island and adjacent mainland British Columbia, and discuss these song types in relation to known types of intraspecific variation. Individual variation within a particular song type has been demonstrated for many species and appears to be important in facilitating individual recognition (see references in Falls and McNicholl 1979). Such variation within a given type of song will not be addressed in this note.

I spent the summers of 1971 to 1974 inclusive studying Blue Grouse (*Dendragapus obscurus*) on the Comox Burn study area on Vancouver Island, British Columbia (Zwicker and Bendell 1972). These studies involved frequent visits and often prolonged time in the territories of particular male grouse. While on these territories, I noticed that MacGillivray's Warblers (*Oporornis tolmiei*) sang two distinct types of song. The first was that depicted by Robbins et al. (1966), resembling the song of the Mourning Warbler (*O. philadelphia*), including both variations on the record by Kellogg et al. (1962). Bondesen (1977) described this song in detail, and correctly noted that segments of it may be reversed. This song type was sung by most birds encountered on Comox Burn and surrounding areas. Two birds, however, consistently sang a song resembling that of the Yellow-rumped (Audubon's) Warbler (*Dendroica coronata auduboni*), another common species in the area. These birds, presumed to be consistently the same by their territorial behavior, were never heard singing the more common song, and no others were heard singing the Audubon-like song. However, when J. Bruce Falls and I played an Audubon-like song to a bird with the common song, the latter flew to the speaker aggressively, indicating recognition of some aspect of the unusual song as a conspecific song. The subject of the experiment was not likely familiar with the song of either Audubon-like singer, as his territory was not within hearing distance of either bird which sang the unusual song. His reaction cannot be considered as one of interspecific aggression, as an Audubon's Warbler sang regularly within his territory without stimulating an attack.

Townsend's and Black-throated Gray warblers (*Dendroica townsendi* and *D. nigrescens*) were both present in small numbers (three to five pairs) each year at our camp on Piercy Creek, about 5 km downslope from Comox Burn. Although the songs of these two species are often said to be similar (e.g. Pough 1957, Peterson 1961), the song of the Townsend's Warblers in camp bore no resemblance to that of the Black-throated Gray Warblers, nor to the song of the Black-throated Green Warbler (*D. virens*), with which it has also been compared (e.g. Stein 1962). Rather, the Townsend's Warblers in camp invariably sang three rising notes, unlike the recordings in Kellogg et al. (1962), or any written description or sonagram I have seen for this species. In conducting Breeding Bird Surveys near Port Alberni on Vancouver Island and Gibson's Landing on the adjacent mainland, I noted that the more typical song of this species was sung at stops where Black-throated Gray Warblers were not heard, whereas the three-note song was heard where both species occurred (Table 1).

## NOTES

Table 1. Song types of Townsend's Warblers heard on two Breeding Bird Surveys in British Columbia, 1974.\*

	TYPE A	TYPE B	TYPES A&B
Port Alberni, Vancouver Island:			
Stops at which only Townsend's was singing	10	0	2
Stops at which Townsend's and Black-throated Gray were both singing	0	7	0
Gibson's Landing, mainland B.C.:			
Stops at which only Townsend's was singing	3	0	0
Stops at which Townsend's and Black-throated Gray were both singing	0	5	0

\*Type A = Black-throated Gray Warbler-like song; type B = three note song commonly heard in Piercy Creek camp.

In both the MacGillivray's and Townsend's warblers the apparently atypical songs were sung throughout the breeding season, and different songs were not sung with time of day, as evidenced by my almost daily visits to their territories at varying times of day and always hearing the same song type. Thus, seasonal and diurnal variation does not account for these different songs (Borror 1961). Similarly geographic variation does not apply, as all observations were in the same general area, although the songs could have been learned in different places. Borror (1961) and James (1976) noted that several species usually not known to mimic other birds do so occasionally. The two MacGillivray's Warblers that sang Audubon-like songs may have learned the song from the latter species, although our brief experiment showed that some component of this song enabled other MacGillivray's to recognize it as a conspecific song. As mentioned above, the two species frequently sang and foraged in close proximity on Comox Burn with no sign of interspecific hostility. Thus, if this case represented mimicry, the mimicry apparently was not used in territorial defense against the model species, as reported in some cases (Adkisson and Conner 1978). Different song types may convey different messages or more precise messages (Craig 1943, Lein 1978), but as these song types were specific to particular males, rather than behavioral contexts, the Audubon-type song did not appear to convey a different meaning than the more typical song. I did hear variation within the more typical song and suspect that this may have been due to a graded series of song types of the sort described by Lein (1978), but I have no direct evidence for this. Verner (1975) described another case in which different song types did not appear to convey different meanings.

Armstrong (1973) has noted that character displacement of song takes place in some species with similar songs, with these songs being less similar where both species come together. The limited data in Table 1 suggest this as a possible explanation for the two song types of Townsend's Warblers. However, I have heard Townsend's Warblers sing Black-throated Gray-like songs in Stanley Park, Vancouver, in close proximity to Black-throated Gray Warblers. Thus, character displacement, which could take place at a much more subtle level, does not seem to be a total explanation. Perhaps habitat has some influence on this situation.

## NOTES

In both cases, the less common song types warrant further investigation.

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