

THE IMPORTANCE OF TROPICAL WINTERING AREAS TO PRAIRIE BIRD POPULATIONS

ROGER P. GRIMSHAW, 401-585 River Avenue, Winnipeg, Manitoba. R3L 0E5

Prairie naturalists are well aware that many of our birds are with us for only a small part of the year. Many spend more time in tropical wintering areas than on their breeding grounds. One family which demonstrates this particularly well is the Parulidae or Wood Warblers. In Manitoba, most warblers arrive towards the end of May, and are gone by the beginning of September. Allowing three weeks in each direction for migration, around seven months of the year will be spent on the wintering grounds. Hence the conditions of habitat on the wintering grounds can be of vital importance to a bird population. Maintaining the population of any species depends not only on survival in the breeding range, and breeding success, but also on successful migration and wintering.

The three tropical areas where prairie landbirds winter are South America, Mexico and Central America, and the West Indies. Table 1 shows where our warblers spend the winter. Some, such as the Black-and-white Warbler, are widely distributed. Thirteen species travel as far as South America, four of these wintering there and essentially nowhere else.

The Parulidae may be looked on as an essentially tropical Neotropical family. Of a total of about 120 species, only some 50 breed mainly in the^{4 12} United States or Canada the rest being confined to the tropics. Migration evolved as a means by which some members of the family could exploit a seasonal niche which became available as the glaciers receded. Thus the true "home" of our warblers is really in the tropics,

and they are only temporary visitors here in the summer.¹¹

Table 2 shows other families of landbirds which include species breeding in the prairie provinces and wintering in the Neotropics.

The land area of North America south of the tree-line is approximately four times that of the three wintering areas mentioned above, combined.⁸ Thus the birds are more concentrated on their wintering grounds than on their breeding grounds. The importance of these tropical areas to our breeding birds is obvious.

Yet tropical forests are being destroyed at an alarming rate. 27.5% of the mature forest in the wintering areas was destroyed between 1955 and 1970.⁸ Figure 1 shows the amount of dense forest in Costa Rica in 1940 and 1977. Costa Rica probably has one of the best records for conservation in Latin America.

There are a number of reasons for the destruction of the forests. Latin America has one of the highest rate of population growth in the world — in South America 2.7% annually and in Central America 3.3% annually.⁵ The birth rate is two and one-half times greater than that in Canada.⁵ The increasing population needs to clear more land for food production and housing.

Perhaps more important is the change which is occurring in land use patterns in the tropics. Traditionally, peasant farmers used a slash and burn type of agriculture. A small area of forest

would be cut, burned once dry, then planted to crops. Because of the low fertility of most tropical soils, the resulting clearing could be used to grow crops for a few years only. Then it would be abandoned and natural succession would occur, while the farmer moved on elsewhere. Thus a continuous source of successional forest would be available to the birds.

Now, however, the small farmer is disappearing and the land is more likely to be planted to bananas or turned to pasture once cleared, and managed by

a large agricultural company. Habitats of this type are much less attractive to most birds. Frequently the soil is not fertile enough to sustain such intensive use for long. Heavy seasonal rain may leach nutrients from the unprotected soil and serious erosion may occur. The area may soon become a wasteland, of use neither for agriculture nor as wildlife habitat,¹⁴ (and pers. obs. in several Central American countries).

We may be making a personal contribution to this destruction by buying fruit or beef imported from tropical countries.

Table 1. MIGRATION AND WINTERING OF THOSE WARBLERS THAT REGULARLY BREED IN MANITOBA

<i>Species of Warbler</i>	<i>USA</i> ¹⁰	<i>Mexico</i> ⁹	<i>Costa Rica</i> ¹³	<i>S. America</i> ⁶	<i>W. Indies</i> ¹
Black-&-white	W ^b	W	W	W	W
Golden-winged	T ^a	T	W	W	W
Tennessee	T	W	W	W	T
Orange-crowned	W	W			
Nashville	T	W			
Parula	W	W			W
Yellow	T	W	W	W	W
Magnolia	T	W	W		W
Cape May	T				W
Yellow-rumped	W	W	W		W
Black-throated Green	T	W	W		W
Blackburnian	T	T	W	W	T
Chestnut-sided	T	T	W		T
Bay-breasted	T	T	T	W	T
Blackpoll	T			W	T
Pine	W	W			W
Palm	W	W			W
Ovenbird	T	W	W	W	W
Northern Waterthrush	T	W	W	W	W
Connecticut	T			W	T
Mourning	T	T	W	W	
Common Yellowthroat	W	W	W		W
Wilson's	T	W	W		
Canada	T	T	T	W	
American Redstart	T	W	W	W	W
No. wintering species	7	16	15	13	14
No. transient only	18	6	2		6
Total species found	25	22	17	13	20

^a T . . . occurs only as transient

^b W . . . winters. Other individuals may be transient.

Whether this habitat loss will affect the populations of birds breeding in the prairies will depend on a number of factors. There is controversy as to whether population is limited on the breeding

grounds or wintering grounds. That wintering could limit populations was shown by the catastrophic decline in breeding populations of some species of Old-world Warblers (Sylviidae)

Table 2. MAIN FAMILIES OF PRAIRIE PROVINCE LANDBIRDS WITH MEMBERS WINTERING IN THE TROPICS.

<i>Family</i>	<i>Example</i>	<i>Wintering Area</i>
<i>Accipitridae</i>	Swainson's Hawk	Virtually all winter in the pampas of Argentina. ² Concentration in the narrow isthmus of Central America provides a spectacular sight.
<i>Falconidae</i>	Peregrine Falcon	Winters south to Chile. In tropics may ingest pesticides (banned in USA and Canada) which interfere with reproduction.
<i>Charadriidae</i>	American Golden Plover	In fall, adults fly south over the Atlantic Ocean to South America. In spring, they follow the land, as do immatures in fall.
<i>Scolopacidae</i>	Semipalmated Sandpiper	Winters from Gulf coast of US to S. America
<i>Cuculidae</i>	Black-billed Cuckoo	S. America
<i>Caprimulgidae</i>	Common Nighthawk	S. America
<i>Apodidae</i>	Chimney Swift	S. America
<i>Trochilidae</i>	Ruby-throated Hummingbird	Central America, southern US
<i>Tyrannidae</i>	Least Flycatcher	Most species winter in the tropics, the Eastern Phoebe in S. US
<i>Hirundidae</i>	Barn Swallow	Central and S. America
<i>Turdidae</i>	American Robin	Despite the scientific name (<i>Turdus migratorius</i>) many go no further than northern US and may winter here. Thrushes of the genus <i>Catharus</i> winter in Central and S. America.
<i>Vireonidae</i>	Red-eyed Vireo	S. America
<i>Parulidae</i>		One of the most highly migratory families. See Table 1.
<i>Thraupidae</i>	Scarlet Tanager	Basically a Neotropical family with only 2 members breeding in our area.
<i>Fringillidae</i>	Rose-breasted Grosbeak	W. Indies, Central and S. America. But most finches are much less migratory.

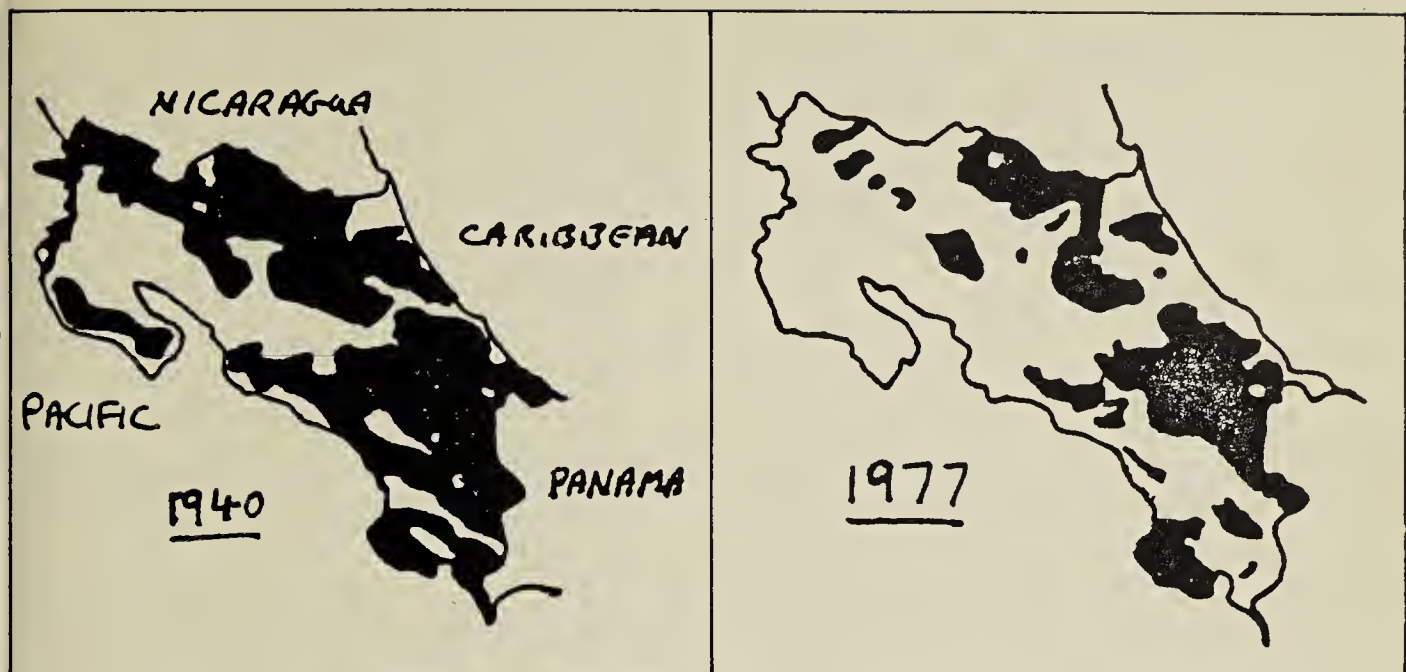


Figure 1. *Dense Forest (over 80% ground cover) in Costa Rica 1940 and 1977. Source: Organisation for Tropical Studies, San Jose, Costa Rica.*



Figure 2. *Land which has been cleared of its natural forest cover and is now used for grazing. Provincia de Guanacaste, Costa Rica, Central America.*

Photo by R. Grimshaw.

following a drought on their wintering area.⁸ On the other hand, Bay-breasted and Cape May Warblers have been shown to fluctuate in total numbers in response to increased breeding success during spruce budworm outbreaks in northern forests.⁷

Perhaps there is a balance or equilibrium, which could vary from species to species. An increase in breeding success could make wintering ability the limiting factor. Conversely, more successful wintering could make breeding the limiting factor. Populations would be stable over the long term, although major habitat or other changes could shift the balance in either direction.

Another important factor is the type of habitat used by migrants while in the tropics. Do they need primary forest, or do they prefer edge or second growth which might be increased by certain types of forest clearing? Apparent differences in numbers of migrants recorded from different habitats may reflect the ease of seeing the birds rather than real differences in usage. It seems likely that those species using successional and edge habitats on their breeding grounds will also do so in winter, while other species will stick to primary forest.¹⁴

Clearly, much research needs to be done in the tropics to clarify some of these problems. However, it is also important to census the birds on their breeding grounds. By doing this accurately and over a long period of time, population changes may become apparent that have their origin in habitat changes in the tropics.

It is to be hoped that there will be increasing habitat conservation in Latin America. Not only will this help preserve the resident biota, but also provide for the many species of birds which breed in higher latitudes and return to their ancestral homes for the northern winter.

Acknowledgement

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