

# Long-billed Dowitcher *Limnodromus scolopaceus* (Say) migration: two Canadian Prairie studies

J.B. Steeves & Stewart Holohan

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Systematic counts of Long-billed Dowitcher *Limnodromus scolopaceus* were conducted in the far eastern (Winnipeg, Manitoba) and far western (Calgary, Alberta) sections of the south Canadian prairie. A total of 655 counts were carried out between 1980 and 1990 in the eastern section. A total of 417 counts, at many small sites, were carried out between 1979 and 1989 in the western section. Patterns of occurrence and descriptive statistics are presented. Data suggest that northward passage is mainly through the western prairie, starting in late-April, peaking in mid-May and ending in early-June. Southward passage is also mainly through the western prairie taking place in successive waves, starting in early-July and ending in late-October. The main passage, a second, minor route through the eastern prairie occurs from late-August to early-October. The patterns of occurrence on migration are discussed in relation to the provincial and general literature. The relationship between the Asian and North American breeding grounds, the wintering area and the passage sites is also discussed.

J.B. Steeves, Box 61086 Kensington Postal Outlet, Calgary Alberta T2N 4S6 Canada.  
S. Holohan, 150 Woodland Drive, Midland Ontario L4E 4E3 Canada.

## INTRODUCTION

The Long-billed Dowitcher *Limnodromus scolopaceus* is a passage migrant in the western provinces. This report presents data from over a decade of systematic counting at two Canadian prairie staging areas (Figure 1) — the eastern edge of the prairie at Winnipeg, Manitoba and the western edge at Calgary, Alberta. These data and the literature suggest that northward migration through the prairies tends towards the west, with a peak migration around mid-May, and that the extreme far eastern prairie has an extremely small passage. Southward movement tends toward the west in successive waves from early-July to late-October, with an eastern prairie passage mainly between late August and early October. It is suggested that Siberian and western Alaskan breeding populations use the western coastal route and that more eastern populations use the prairie route.

## STUDY AREAS

The Great Plain of North America stretches ca. 2,500 km north from the Gulf of Mexico to the Arctic Ocean. A southern portion is often called the prairies and parkland. In Canada, this area lies in the provinces of Manitoba, Saskatchewan, Alberta, and northeast British Columbia (Figure 1). It is an area of limited rainfall and most of its agricultural practices depend on rainfall in May and June. This varies from area to area and fluctuates from year to year creating an unstable habitat. The studies were made at almost the extreme south-east and south-west sections of the area, separated by a distance of ca. 1,300 km.

Manitoba counts (ca. 50°N, 97°W—elevation ca. 250 m) were at Grassmere Creek, West St. Paul—at a fairly

stable 43.7 ha sewage area containing 16 evaporating sludge ponds and Oak Hammock Marsh area—a restored cattail marsh containing ca. 1953 ha of water in four ponds and large areas of pasture.

Alberta counts were made in a rectangular, undulating, agricultural high prairie area east of Calgary (50°55' to 51°20'N, 113°10' to 113°55'W — elevation ca. 1000 m). Occasionally counts were made in the foothills/mountains (elev. ca. 1,200 m) west of the city. The birds were found in ephemeral pools, sloughs, lakes, and irrigation reservoirs. Count habitat was extremely unstable due to meteorological and human-manipulation factors. The interplay of these factors created phasing habitats ranging from unsatisfactory to ideal. A factor which often created satisfactory habitats was an continuing drought in the 1980s. Large shallow lakes tended to take years to dry and often made shorebird concentrations predictable but on smaller lakes they were often unpredictable as drying could occur in days or weeks. This example illustrates the unstable nature of the prairie habitat and the resulting difficulty in undertaking systematic counts.

## METHODS

Manitoba counts were by Holohan, who conducted systematic sampling by walking around the ponds on a standard route: 489 counts were carried out at the Grassmere Creek sewage sludge ponds from 1981-1989 and 166 counts, mainly within a 150 ha area of Oak Hammock Marsh north ponds, were carried out from 1980-1990.

The Alberta data was gathered by Steeves from 1979 to 1989. The principle method was to make five hour counts



Figure 1. Location of Canadian prairie/parklands and major sites mentioned in text.

from a car along the grid road system. This grid road system was established in the late 1800s with the division of the prairie into agricultural land parcels with road allowances. The allowances run every 1.6 km east to west and every 3.2 km north to south. Counts took place along these roads at fields, sloughs, lakes, and reservoirs. Second counts, with minor exceptions, at any location took place at least six days later (a total of 254 counts - annual range 11-35).

Descriptive statistics figures were calculated for both areas, after summarising the data in five day periods.

## RESULTS

Of particular interest of the results given in Table 1 is that there was no northward passage at the far eastern section of the prairie and at the western section of the prairie about seventy percentage of the birds passed between 11 and 17 May. This pattern is shown graphically in Figure 2. The southward passage at the eastern section of the prairie started later and had fewer birds. Both of these southward passages are characterised as having successive waves.

Table 1. Patterns of arrival and departure at Calgary and Winnipeg study areas.

	Calgary		Winnipeg	
			GC	OHM
<b>NORTHWARD</b>				
Early arrival	26 Apr		No	
Mean arrival	4 May		Passage	
Mean peak	14 May			
Std. deviation from mean peak	3.4 days			
Mean departure	26 May			
Late departure	6 Jun			
Total number 1979 to 1989	7,900			
<b>SOUTHWARD</b>				
Early arrival	1 Jul		10 Jul	16 Jul
Mean arrival	9 Jul		27 Aug	*
Mean departure	9 Oct		7 Oct	*
Late departure	24 Oct		18 Oct	27 Oct
Total numbers	18,000		800	2,300
Number/count	63		3	29
Maxima/day	1,400		120	515
First juveniles	*		18 Aug	*

\* Insufficient data

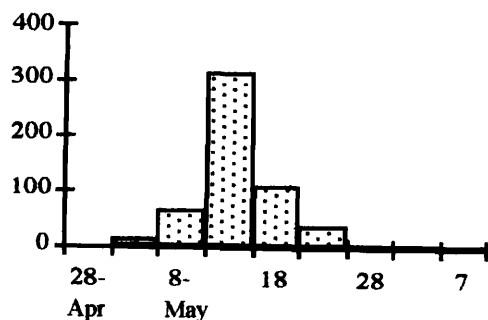


Figure 2. Patterns of northward occurrence at Calgary. The abscissa cover five-day intervals. The ordinate covers the mean number of each class interval. No passage occurred at Winnipeg.

## DISCUSSION

A number of ideas concerning routes, numbers and migration times occur in the literature. Cramp & Simmons (1979) described three southward routes, west coast, interior via Great Plain—"well east of Rocky Mountains", and diagonally SE to reach New England. The northward passage is described as being through western United States of America in April. American Ornithologists' Union (1983) said "*Migrates primarily through western North America west of the Rocky Mountains, less frequently (and primarily in fall) east of the Rockies...*" Wilds & Newlon (1983) said "migrate abundantly through the Pacific states and the Great Plains; some also move east and south to the Atlantic Coast,..." Godfrey (1986) indicated a migration in the western provinces. Hayman *et al.* (1986) believed that there is a "**strong easterly element**" that bring southward moving birds to "as far north as New England.... Spring migration follows a more westerly route;...." (Emphasis added.)

### Provincial information: northward passage

Campbell *et al.* (1990) for British Columbia described status as "*fairly common*" on the coast and "*very common*" on the Great Plain (ca. 56°N, 121°W). Sadler & Myres (1976) and Pinel *et al.* (1991), present two decades of Alberta data. They indicate a minor Alberta movement—maxima only two flocks of more than 100 birds and their data allows a mean arrival calculation of 1 May. In contrast, the present study had over 20 counts of over 100 birds. In addition at Winagami Lake near McLennan (ca. 55°30'N, 117°W), numbers of about 100 were recorded (JBS unpubl. casual counts). In Saskatchewan Colwell *et al.* (1988), at Last Mountain, found that peak numbers passed between 7-13 May, the highest count recorded was 147, and that passage occurred between 7-27 May. Renaud & Renaud (1975) at Rosetown and Biggar in Saskatchewan recorded a mid-May maxima of 60 and 100, during passage which lasted from 6 May to 4 June. At Regina, Saskatchewan, Adam *et al.* (1985) indicated the status as being fairly common

to common from about 5-18 May. At Winnipeg area, Manitoba, Cleveland *et al.* (1988) recorded a low level passage from the end of April to about the 10 June. Secondly, Cuthbert *et al.* (1990), ca. 200 km west of Winnipeg at Brandon, Manitoba, recorded small numbers occurring between the 7-25 May.

In summary, this study supports the timing of passage outlined in the provincial references. It agrees with the numbers suggested for the Great Plain of northeast British Columbia, but does not support the minor passage implied for Alberta. The much greater passage west of the Cordillera suggested by the American Ornithologists' Union (1983) probably needs further study, since Campbell *et al.* (1990) suggest greater numbers on the British Columbia plain and numbers indicate that the eastern edge of the flyway is near Saskatchewan - giving a E-W width of ca. 800 km.

### Provincial information: southward passage

Campbell *et al.* (1990) indicated a widespread passage in British Columbia that starts in early-July and peaks during September and October. They refer to ten coastal records of more than 300 birds—most were much smaller. Inland all the records are from valleys of the Cordillera (mostly fewer than 100 birds) and the British Columbia Great Plain (usually fewer than 100 birds). Salt & Salt (1976) indicated that in Alberta "The first southbound... arrive ... **early August** ... young ... end of the month." (Emphasis added); but Pinel *et al.* (1990), suggest an **early July** arrival. They also recorded flocks of more than 100 birds six times during the 1970s, the largest being 1,000. At Saskatoon in Saskatchewan, Gilliland & Gollop (1992) found Long-billed Dowitchers present annually, usually in large numbers between 1 July to early November. Adam *et al.* (1985), at Regina, Saskatchewan, found it was present between ca. 10 July and mid-October, and common from mid-August to the last third of September. Colwell *et al.* (1988), at Last Mountain, Saskatchewan, recorded a peak between 12-19 July, based on one year of data. The maxima number recorded was 308. At Winnipeg, Cleveland *et al.* (1988) indicated that it was uncommon from mid-August to mid-October. In contrast, Cuthbert *et al.* (1990) in a study only 200-330 km further west at Brandon Manitoba found them to be common from mid-July to mid-October.

In summary, our data and the literature support a Great Plain route, but there are some timing and principal route differences. In particular, the suggestion that the principal route is well east of the Rocky Mountains and that the Alberta first-arrivals occur in August. We suggest that the main route is east of the mountains on the 'high plain', that numbers passing through on passage decrease further east where peak times are also later gradually decrease eastward, and that eastward peak times are later.

The pattern of occurrence at Alberta supports that described for coastal British Columbia, but the numbers seem too low to support the idea that the migration is

primarily west of the Rocky Mountains (American Ornithologist's Union 1983).

*Relation of breeding and wintering ground information to southward and northward migration*

The Long-billed Dowitcher breeds along the Russian north Siberian coast from the west Taimyr peninsula to Chukotski Peninsula, Anadyr Basin, and St. Lawrence Island. In the USA it breeds on the western and northern coasts of Alaska, and in Canada, in the northern Yukon territory as far as the northwestern Mackenzie region (Dement'ev, *et al.* 1951; American Ornithologists' Union 1983; Flint *et al.* 1984; Tomkovich 1994) (Figure 3). Until recently there have been scattered sightings west of the Lena River delta (Chupin 1987) but recently I.I. Chupin (in Tomkovich 1994) reported a brood of downy chicks near the mouth of the Bludnaya River in the west Taimyr. Siberian birds migrate to North America. The Palearctic breeding area is thus more extensive than the Nearctic.

longer migration for those from more distant breeding grounds. This was supported by Cramp & Simmons (1979) who referred to 1972 studies of Kistchinski & Flint, who found that females flock in late June and then move away. Males remain to tend chicks and depart in late July to early August, but there is no indication as to the direction of the movement.

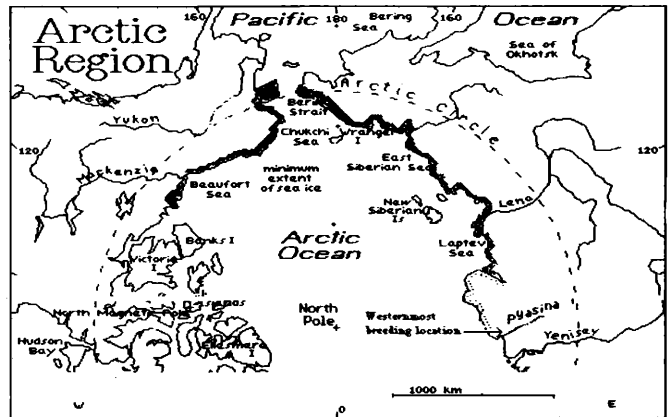


Figure 4. Breeding range of Long-billed Dowitcher shown by stippling.

If Siberian and western Alaskan populations mainly use the west coast, then the American Ornithologists' Union (1983) statement of a migration primarily west of Rocky Mountains could hold true. The wintering population near the Gulf of Mexico probably use the interior route and this idea is supported by counts further north at Cheyenne Bottoms, Kansas (ca. 35°30'N, 95°30'W) e.g. 12,000 at the end of April 1989 (Castro 1989). Cramp & Simmons (1979) indicated that it is scarce everywhere on the Atlantic coast. Root (1988), using data from many years of Christmas Bird Counts, goes further and stated that it is not present on the Atlantic coast during early winter. Reports of birds occurring along the Atlantic Coast probably refer to juvenile autumn birds that eventually move to the main wintering areas. Her analysis indicates seven disjunct United States of America wintering groups—three in the Gulf of Mexico area—three along the Pacific coast, and one, having the greatest peak, around California's Salton Sea (Figure 4). In addition, American Ornithologists' Union (1983) indicates that others winter south through Mexico (mainly on the west coast) to Guatemala. Recently Howell & Webb 1995 (Figure 5) refine the range as through the Baja, the Pacific and Atlantic slopes, and in the interior to 2,500 metres and mention that there are no confirmed records for the east or north Yucatan Peninsula.

In summary, Long-billed Dowitchers occur in high numbers on the northward migration through the western Great Plain and Pacific coastal areas. On the southward migration they mainly move along the same route, but

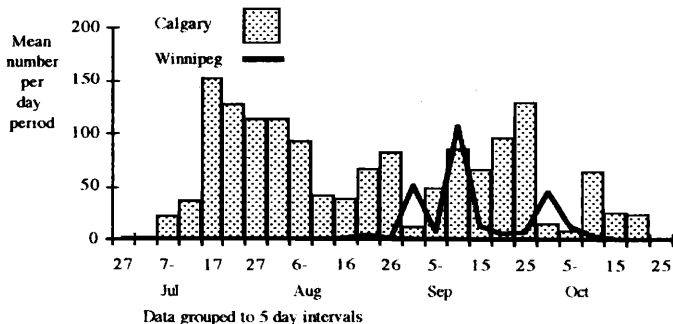


Figure 3. Patterns of southward occurrence.

Population numbers for both continents are unknown, but studies carried out by Kistchinski (1982) suggest that it is not a rare breeder. Holohan (1993) found it nesting in the Kolyma delta and the local reserve manger stated that he had seen about 2,000 staging dowitchers at Chukochiy (70°3'N, 159° 50'E) (S.I. Mouchalov per comm., August 1991).

The breeding season in Siberia seems to be about the same as in North America. It is possible that it is the Siberian population that use the west coast for migration and wintering as this appears to be the most direct route. Kessel (1989) suggested that the birds nesting in Seward Peninsula, Alaska use the coastal route. Flocking starts in late June but main post breeding flocks become evident in the second week of July: these are thought to contain failed breeders and successful females. Autumn migration of adults is under way by the end of July and most have left by mid-August. Juveniles then start to move southward. The southward movement on the Seward Peninsula at the end of July differs from our data and those presented Campbell *et al.* (1990), but could indicate that there is a 'leapfrog' migration - an earlier and

some move in a more easterly direction and some stage briefly on the United States of America east coast.

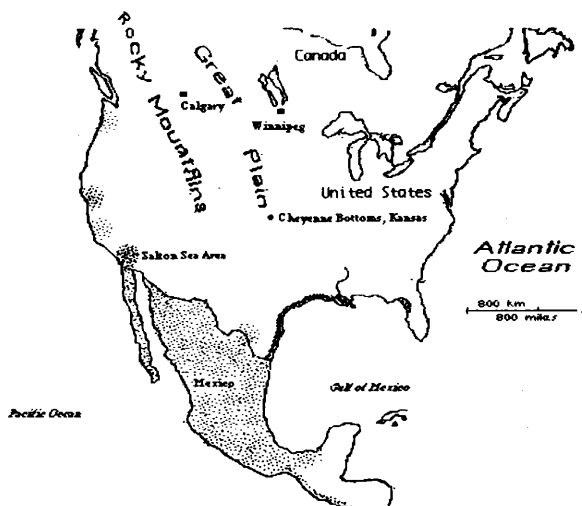


Figure 4. Wintering range of Long-billed Dowitcher shown by stippling.

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