

Addendum to the Final Recovery Strategy for the Piping Plover (*Charadrius melodus* *circumcinctus*) in Canada RE: Identification of Critical Habitat

Piping Plover, *circumcinctus* subspecies



July 2007



Environment
Canada

Environnement
Canada

Canada

**ADDENDUM TO THE FINAL RECOVERY STRATEGY FOR THE PIPING
PLOVER (*CHARADRIUS MELODUS CIRCUMCINCTUS*) IN CANADA**

RE: IDENTIFICATION OF CRITICAL HABITAT

July, 2007

INTRODUCTION

This is the final addendum to the final recovery strategy for the *circumcinctus* subspecies of Piping Plover, (*Charadrius melodus circumcinctus*), which was posted on the *Species at Risk Act* (SARA) Public Registry on November 6, 2006 (hereinafter referred to as the “2006 Piping Plover Recovery Strategy”). The proposed addendum was posted on the Public Registry on March 16, 2007 for a 60-day comment period, during which a number of comments were received. These comments were carefully reviewed and analysed by Environment Canada officials, including officials with expertise in the *circumcinctus* subspecies of Piping Plover, and were considered in finalizing this addendum.

Section 41(1)(c) of SARA requires that recovery strategies include an identification of a species’ critical habitat, to the extent possible, and examples of activities that are likely to result in its destruction. SARA also states that recovery strategies may be amended at any time, and that copies of the amendments must be included in the SARA Public Registry.

Research and analysis of information gathered regarding critical habitat for Piping Plover *circumcinctus* have advanced since the posting of the final 2006 Piping Plover Recovery Strategy. This addendum identifies critical habitat for Piping Plover *circumcinctus* to the extent possible at this time, and is provided as an amendment to the previously published recovery strategy. This addendum includes a list of wetland and/or riverbed basins across the range of the *circumcinctus* subspecies (i.e. Ontario, Manitoba, Saskatchewan and Alberta) that are likely to contain critical habitat. Where possible, the exact location of critical habitat within these basins has been specified at the quarter section level (see footnote 1, Table 2).

Quarter sections were selected as the typical basis for identifying the location of critical habitat because rural land in western Canada is generally owned and managed at the quarter section level, and land ownership can easily be tracked at that level. Tracking ownership of land identified as critical habitat in recovery strategies (or in addenda such as this) is important for the purpose of consulting with landowners and other persons whom the competent minister considers to be directly affected, as specified under section 39(3) of SARA.

It is important to consult, to the extent possible, with regard to the identification of critical habitat in order to make all affected parties, including landowners, aware of the implications associated with critical habitat under SARA. Sections 58 and 61 of SARA contain prohibitions against the destruction of critical habitat in various circumstances defined in the Act. These consultations are also important as they serve to engage all affected parties in a cooperative approach to critical habitat management and protection under SARA.

Critical habitat has been identified in 65 quarter sections in 20 basins at this time. Within these quarter sections, critical habitat is defined as the area of the shore between the

ordinary high-water mark and the water's edge, as Piping Plovers are terrestrial shorebirds that use the shore area between the water's edge and terrestrial vegetation.

1.0: A HIERARCHICAL APPROACH WAS USED TO IDENTIFY CRITICAL HABITAT

SARA defines critical habitat as "...the habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species' critical habitat in the recovery strategy or in an action plan for the species."

A hierarchical approach was used in order to identify critical habitat for Piping Plover *circumcinctus*. A first, more general, set of "Basin Criteria" (listed in section 1.1 below) were applied to determine which basins within the range of Piping Plover *circumcinctus* were likely to contain critical habitat for this subspecies.

Although a basin may contain many critical habitat sites, it may also consist of some areas unsuitable for use by Piping Plover *circumcinctus*. A second criterion or set of criteria must therefore be applied within basins likely to contain critical habitat to determine precisely which portion(s) of each basin's shore constitute(s) critical habitat. The "Quarter Section Criterion" (provided in section 1.2 below) was used as the second criterion to identify critical habitat in the 20 basins in which critical habitat has been identified at this time. The portions of the shore that constitute critical habitat are identified at the quarter section level.

1.1: Basin Criteria

Application of the Basin Criteria allows a broad identification of basins that are likely to contain critical habitat for Piping Plover *circumcinctus*. As outlined in the 2006 Piping Plover Recovery Strategy (Environment Canada 2006), the following criteria were applied in order to determine which basins throughout the range of Piping Plover *circumcinctus* (i.e. Alberta, Saskatchewan, Manitoba and Ontario) were likely to contain critical habitat:

- 1) Average number of plovers over all surveys of ≥ 4 adults in Alberta and Saskatchewan, ≥ 2 adults in Manitoba and Ontario, or 5% of the province's recovery target in any one year during the window; and
- 2) A minimum of three surveys per site during the breeding season, each carried out on a separate year; and
- 3) A floating window of at least 15 years (starting in 1991) to determine site (wetland, lake, riverbed) status. The 15-year window is based on three international censuses, occurring every five years.

In other words, in order for a basin to be considered likely to contain critical habitat, the average number of adult plovers recorded in all surveys carried out at that basin over the last 15 years must be greater than or equal to four (Alberta and Saskatchewan) or two

(Manitoba and Ontario). For each basin, the surveys averaged must include at least three completed during the breeding season, and may include any surveys completed at a particular basin in addition to the surveys undertaken as part of the International Piping Plover Breeding Census. A basin is also considered likely to contain critical habitat if, in any single year over the last 15 years, the number of adult plovers counted in a survey of that basin is greater than or equal to 5% of the provincial recovery target for the province in which the basin occurs. The provincial recovery targets set for Piping Plover *circumcinctus* in the 2006 Piping Plover Recovery Strategy are as follows: Alberta 300; Saskatchewan 1200; Manitoba 120; and Ontario (Lake of the Woods) 6 (Environment Canada, 2006). It is important to note that the Ontario target of 6 birds applies only to the Lake of the Woods, in northern Ontario; a population target for southern Ontario is premature at this time because the Piping Plover has not bred there for approximately 30 years prior to 2007, and the quality and suitability of habitat is uncertain and requires assessment.

The criteria of ≥ 4 adults over all surveys in Alberta and Saskatchewan and ≥ 2 adults over all surveys in Ontario and Manitoba were selected as lower limits for the occurrence of plovers in basins by consensus of members of the Prairie Piping Plover Recovery Team based on historical knowledge of population size and habitat use. The recovery team includes members with expertise in biology, conservation, population dynamics, and management of Piping Plover *circumcinctus*. A more inclusive lower limit was used in Manitoba and Ontario as Manitoba's population is small and Ontario has only a remnant population. The more stringent criteria for Alberta and Saskatchewan acknowledge that the populations in these provinces are larger, and higher numbers of plovers are therefore likely to be observed in surveys of the basins in these provinces.

The requirement for a minimum of three surveys serves to stabilize site identification by helping to ensure that one-time fluctuations in population numbers or basin use will not necessarily result in a basin being excluded. The use of a floating window of 15 years ensures that, at a minimum, the information from three International Piping Plover Breeding Censuses, which occur at 5-year intervals, can be considered in selecting basins that are likely to contain critical habitat.

The International Piping Plover Census is a comprehensive census of Piping Plovers, carried out in the United States, Canada, Mexico, Cuba, the Bahamas, the Caribbean, and St. Pierre et Miquelon (France). The goal of the Census is to monitor progress toward recovery goals and to determine and monitor changes in species distribution (Haig et al. 2005). The Census methodology was designed by the U.S. Great Lakes/Northern Great Plains Piping Plover Recovery Team, and consists of two major components: a wintering ground census, and a breeding ground census. Only data from the breeding census is considered in the identification of critical habitat for the Canadian population of Piping Plover *circumcinctus*, as there are no wintering grounds for this subspecies in Canada. The first two weeks of June are the survey period for each Breeding Census.

1.2: Quarter Section Criterion

As discussed above, the Basin Criteria were applied first to determine which basins are likely to contain critical habitat. A second criterion (“Quarter Section Criterion”) was then applied to more precisely determine which quarter sections or comparable units of the shore contain critical habitat for Piping Plover *circumcinctus*:

- Quarter sections (or comparable units) with critical habitat are those where use has been documented by ≥ 2 Piping Plover pairs (or ≥ 2 nests, or ≥ 4 adults) in ≥ 2 breeding seasons over a floating 15-year window.

In other words, in order for critical habitat to be identified within a given quarter section (or comparable unit) at least two surveys conducted during the breeding season over the last 15 years must show any of the following within that quarter section: two or more pairs; two or more nests; or four or more adult plovers. This methodology will result in the identification of critical habitat known to have been used over a reasonable time frame, and is similar to that used by the Alberta Piping Plover Recovery Team (Alberta Piping Plover Recovery Team, 2006).

Within the quarter sections identified by applying the Quarter Section Criterion, critical habitat is defined as the area of the shore between the ordinary high-water mark and the water’s edge. The upper extent of habitat is defined by the ordinary high-water mark, as outlined in the 2006 Piping Plover Recovery Strategy (Environment Canada, 2006).

Critical habitat excludes human-made structures (e.g. piers, buildings, marinas, irrigation equipment, etc.).

As mentioned in section 1.1 above, the Piping Plover *circumcinctus* populations in Ontario and Manitoba are smaller than the Alberta and Saskatchewan populations. As a result, the Basin Criteria set a more inclusive lower limit for the number of adult plovers observed at basins in Ontario and Manitoba, in order to identify those basins likely to contain critical habitat. More inclusive requirements at the quarter section (or comparable) level may also be required in order to identify sufficient critical habitat to meet the provincial recovery targets set for Piping Plover *circumcinctus* in Ontario and Manitoba in the 2006 Piping Plover Recovery Strategy (Environment Canada, 2006). Accordingly, both the Basin Criteria and the Quarter Section Criterion may be reviewed, refined and updated as appropriate.

2.0: RESULTS OF THE APPLICATION OF THE BASIN CRITERIA AND QUARTER-SECTION CRITERION

Applying the Basin Criteria within the range of the Canadian population of Piping Plover *circumcinctus* identified 59 basins that are likely to contain critical habitat for this population (Table 1). Application of these criteria necessarily excluded some basins used by Piping Plover *circumcinctus* if plovers were observed there infrequently or in low numbers. However, the 59 basins in Table 1 were nonetheless found to contain 90% of the surveyed Canadian *circumcinctus* population based on data from the 2006

International Piping Plover Breeding Census. These basins also contain sufficient habitat to support additional plovers, and to achieve the recovery goal for the Canadian population of Piping Plover *circumcinctus*, which was set at 1626 individuals over three international censuses in the 2006 Piping Plover Recovery Strategy (Environment Canada, 2006).

At this time, the application of the Quarter Section Criterion has identified 65 quarter sections that contain critical habitat for Piping Plover *circumcinctus* within 20 of the 59 basins in Table 1. These 20 basins include seven basins within or adjacent to federal or federally-administered lands in Saskatchewan (Table 2), as well as 13 basins on non-federal lands in Alberta (Table 3). The Quarter Section Criterion was applied to all 15 basins in Alberta that met the Basin Criteria (and that are listed in Table 1). This resulted in the identification of quarter sections that contain critical habitat in 13 of the 15 basins. For these 13 basins, the precise locations of quarter sections that contain critical habitat are not specified. This critical habitat in Alberta was identified based on the Alberta Piping Plover Recovery Plan (Alberta Piping Plover Recovery Team 2006), which uses letters to identify particular quarter-sections rather than providing specific locations of quarter sections. The province of Alberta used this approach to critical habitat identification in order to minimize disturbance to plovers and maintain anonymity of adjacent landowners. The precise locations of these quarter sections are not known by the federal government at this time.

The critical habitat in Alberta and Saskatchewan identified in this addendum was identified in cooperation with provincial authorities, and consultations with landowners and other interested parties have been completed to the extent possible. Additional sites across the range of the Canadian *circumcinctus* Piping Plover population that meet the Basin Criteria and the Quarter Section Criterion will be added to the list of critical habitat as additional information is gathered.

In order to identify critical habitat in the remaining basins, the following work must be completed: in Ontario, further cooperation is required with the province to define the criteria, including the appropriate land unit (comparable to quarter section), for the fine-scale identification of critical habitat; in Manitoba, further cooperation is required with the province to finalize the criteria and the appropriate land unit (comparable to quarter section) for the fine-scale identification of critical habitat, and in Saskatchewan, quality control and assurance need to be applied to the draft list of sites and we are in the midst of an ongoing survey to finalize that list of sites. This work is ongoing and we expect additional critical habitat will be identified by December 2007.

Predation is believed to be the primary factor affecting the recovery of the *circumcinctus* population of Piping Plover. Therefore, although the identification and protection of critical habitat is an important step to support the recovery goal for Piping Plover *circumcinctus*, it is only one component of the efforts being undertaken for the protection and recovery of this subspecies in Canada. Research and monitoring efforts, as well as habitat stewardship initiatives are also important to address known threats to Piping

Plover *circumcinctus* and for the conservation, protection, and recovery of Piping Plover *circumcinctus* in Canada.

The federal Habitat Stewardship Program (HSP), administered by Environment Canada's Canadian Wildlife Service, has provided funding to stewardship and guardianship programs for Piping Plover *circumcinctus* in Manitoba, Saskatchewan and Alberta. These programs have increased public awareness of this subspecies and the challenges it faces, and have contributed to hands-on management, installation of predator exclosures, and monitoring of nests. HSP has also provided funding to support fencing of shorelines and providing off-site watering to cattle, in order to prevent cattle from trampling plover nests on beaches.

Important research and monitoring activities for Piping Plover *circumcinctus* are also ongoing across its Canadian range. These include enhanced monitoring at selected sites in the prairies, and research by Environment Canada officials in Saskatchewan that aims to clarify information on productivity and survival for this species in order to enable more accurate population dynamics modeling to support future conservation efforts.

These stewardship and protection efforts are longstanding in many cases, and have already contributed to positive outcomes for the Canadian population of Piping Plover *circumcinctus*. The 2006 International Piping Plover Breeding Census showed an overall 77% increase in the surveyed Canadian *circumcinctus* population compared to the 2001 Census. While ongoing survey work will be required to confirm that this population increase is sustained over time, the 2006 census numbers provide a positive preliminary indication that important progress is being made towards achieving the recovery goal for this species.

3.0: Examples of Activities that are Likely to Result in the Destruction of Critical Habitat

As critical habitat for Piping Plover *circumcinctus* is being identified in this addendum, examples of activities likely to result in the destruction of that habitat are also included below.

Activities that are likely to result in destruction of critical habitat include: agricultural activities (e.g. tillage, excessive cattle activity on shorelines), resource extraction (e.g. mining, oil and gas development), infrastructure development and construction (e.g. roads, pipelines, bridges or marinas), radical or lasting alterations to normal hydrological regimes (e.g. wetland drainage, construction of dams, lasting increases of water level), pollution of water or shorelines, and excessive recreational use (e.g. all-terrain vehicles, vehicular traffic).

Table 1. Basins in Ontario, Manitoba, Saskatchewan and Alberta that are likely to contain critical habitat for Piping Plovers (*Charadrius melodus circumcinctus*).

Official site name	Unofficial site name	Latitude (N)	Longitude (W)
Alberta			
Akasu Lake		53° 30' N	111° 50' W
Baxter Lakes		52° 53' N	110° 43' W
Birch Lake		53° 19' N	111° 35' W
Chain Lakes	Lake #4	51° 83' N	112° 15' W
Dowling Lake		51° 47' N	112° 11' W
Handhills Lake		51° 30' N	112° 07' W
Killarney Lake		52° 35' N	110° 06' W
Little Fish Lake		51° 22' N	112° 14' W
Muriel Lake		54° 09' N	110° 40' W
Red Deer Lake		52° 43' N	113° 02' W
Reflex Lakes	West Reflex Lake	52° 40' N	110° 00' W
Rockeling Bay		52° 33' N	112° 48' W
Sunken Lake		52° 23' N	110° 39' W
Unnamed	Piper Lake	52° 33' N	110° 62' W
Unnamed	Rider Lake	52° 32' N	112° 46' W
Saskatchewan			
Alkali Lake		49° 00' N	104° 18' W
Aroma Lake		52° 18' N	108° 33' W
Big Muddy Lake		49° 09' N	104° 51' W
Big Quill Lake		51° 55' N	104° 22' W
Bliss Lake		49° 47' N	105° 30' W
Buffer Lake		52° 23' N	106° 00' W
Burn Lake		49° 43' N	105° 28' W
Channel Lake		49° 31' N	105° 16' W
Chaplin Lake		50° 22' N	106° 36' W
Coal Mine Lake		49° 22' N	105° 02' W
Dryboro Lake		49° 43' N	105° 30' W
East Coteau Lake		49° 02' N	104° 26' W
East Poplar River	Cookson Reservoir	49° 03' N	105° 27' W
Elkona Lake		52° 36' N	105° 12' W
Fife Lake		49° 14' N	105° 53' W
Frederick Lake		50° 02' N	105° 47' W
Freefight Lake		50° 24' N	109° 07' W
Freshwater Lake		52° 37' N	109° 59' W
Lake Diefenbaker		50° 43' N	107° 30' W
Lake of the Rivers		49° 49' N	105° 44' W
Last Mountain Lake		51° 05' N	105° 14' W
Lenore Lake		52° 30' N	104° 59' W
Little Manitou Lake		51° 44' N	105° 30' W
Little Quill Lake		51° 55' N	104° 05' W
Manitou Lake		52° 43' N	109° 43' W
Midtskogan Lake	Chaplin Lake, Midtskogan Bay	50° 24' N	106° 39' W
Old Wives Lake	Lake Johnston	50° 06' N	106° 00' W
Redberry Lake		52° 42' N	107° 10' W
Reed Lake		50° 24' N	107° 05' W

Official site name	Unofficial site name	Latitude (N)	Longitude (W)
Reflex Lakes	West Reflex Lake	52° 67' N	110° 00' W
Sandoff Lake		49° 05' N	104° 09' W
Shoe Lake		49° 44' N	105° 21' W
South Saskatchewan River	Gardiner Dam to Saskatoon	51° N	106° W
Unnamed Wetland 540 279		49° 49' N	105° 38' W
Unnamed Wetland 705 056		49° 42' N	104° 24' W
Unnamed Wetland 840 020		49° 39' N	105° 13' W
Unnamed Wetland 842 027		49° 39' N	105° 13' W
Unnamed Wetland 846 992		49° 39' N	105° 13' W
Unnamed Wetland 870 825	Horizon Lake	49° 03' N	105° 11' W
West Coteau Lake		49° 02' N	104° 32' W
Willow Bunch Lake		49° 27' N	105 ° 27' W
Manitoba			
Lake Manitoba		51° 00' N	98° 45' W
Lake Winnipeg		52° 00' N	97° 00' W
West Shoal Lake		50° 20' N	97° 41' W
Ontario			
Lake of the Woods		49° 15' N	94 ° 45' W

Table 2. Quarter sections containing shore that is critical habitat for Piping Plovers (*Charadrius melodus circumcinctus*) in Saskatchewan.

Basin	Description	QSECID ¹	Section	Township	Range	Meridian
Burn Lake	Excel PFRA pasture	NE	04	09	26	2
Dryboro Lake	Excel PFRA pasture	SE	17	09	26	2
Dryboro Lake	Excel PFRA pasture	NW	08	09	26	2
Dryboro Lake	Excel PFRA pasture	NE	08	09	26	2
Dryboro Lake	Excel PFRA pasture	SW	09	09	26	2
Dryboro Lake	Excel PFRA pasture	NW	09	09	26	2
Dryboro Lake	Excel PFRA pasture	SE	09	09	26	2
Dryboro Lake	Excel PFRA pasture	NE	09	09	26	2
Last Mountain Lake	National Wildlife Area ²	SW	14	27	24	2
Last Mountain Lake	National Wildlife Area	NW	14	27	24	2
Shoe Lake	Excel PFRA pasture	SW	20	09	25	2
Shoe Lake	Excel PFRA pasture	SE	20	09	25	2
Shoe Lake	Excel PFRA pasture	NW	17	09	25	2
Shoe Lake	Excel PFRA pasture	NE	17	09	25	2
Shoe Lake	Excel PFRA pasture	SW	21	09	25	2
Unnamed lake 842 027	Keywest PFRA ³ Pasture	NW	29	08	24	2
Unnamed lake 842 027	Keywest PFRA Pasture	NE	29	08	24	2
Unnamed lake 842 027/ Unnamed lake 840 020	Keywest PFRA Pasture	SE	29	08	24	2
Unnamed lake 840 020	Keywest PFRA Pasture	SW	29	08	24	2
Unnamed lake 846 992	Keywest PFRA Pasture	NE	17	08	24	2
Unnamed lake 846 992	Keywest PFRA Pasture	SW	16	08	24	2
Unnamed lake 846 992	Keywest PFRA Pasture	NW	16	08	24	2

¹ QSECID = Quarter section identification. Quarter section descriptions are based on the Dominion Land Survey System, whereby most of western Canada is legally divided into townships based on longitudinal meridians and latitudinal base lines. Each township is given a township number and range number. Townships are approximately 9.7 km x 9.7 km (6 miles x 6 miles) and are further divided into thirty-six sections, each about 1.6 km x 1.6 km (1 mile x 1 mile). In turn, each section is divided into four quarter sections: southeast, southwest, northwest and northeast, which are 0.8 km x 0.8 km (0.5 mile x 0.5 mile). For example, the full legal description of quarter section NW-36-002-06-E is the Northwest Quarter of Section 36, Township 002, Range 06, east of the First Meridian (see McKercher and Wolf 1986 for more information).

² Migratory Bird Sanctuary occurs within National Wildlife Area.

³ PFRA = Prairie Farm Rehabilitation Administration (under Agriculture and Agri-food Canada).

Table 3. Critical habitat within basins for Piping Plovers (*Charadrius melodus circumcinctus*) in Alberta.

Basin	Segment ¹
Akasu Lake	A
Baxter Lake	A
Birch Lake	A, B, C
Chain Lakes (#4)	A, B
Dowling Lake	A, B, C, D, E, F, G, H, I, J
Handhills Lake	A, B, C, D, E
Killarney Lake	A, B, C, D, E
Little Fish Lake	A, B, C, D
Muriel Lake	A, B, C
Red Deer Lake	A, B
Reflex Lakes ("West Reflex Lake")	A, B, C, D
Sunken Lake	A
Unnamed lake ("Piper Lake")	A, B

¹ Segment = quarter section

Literature Cited

Alberta Piping Plover Recovery Team. 2006. Alberta Piping Plover Recovery Plan, 2005-2010. Alberta Sustainable Resource Development, Fish and Wildlife Division, Alberta Species at Risk Recovery Plan No. 10. Edmonton, Alberta. 27 pp.

Environment Canada. 2006. Recovery strategy for the Piping Plover (*Charadrius melodus circumcinctus*) in Canada. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. 30 pp.

Haig, S.M., C.L. Ferland, F.J. Cuthbert, J. Dingleline, J.P. Goossen, A. Hecht, N. McPhillips. 2005. A complete species census and evidence for regional declines in Piping Plovers. *Journal of Wildlife Management* 69(1):160-173.

McKercher, Robert B., Bertram Wolf (1986). Understanding Western Canada's Dominion Land Survey System. Saskatoon: Division of Extension and Community Relations, University of Saskatchewan.