

# Osoyoos Oxbows Important Bird Area Conservation Plan

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# **Osoyoos Oxbows IBA Conservation Plan**

## **April 2001**

### ***Foreword***

#### **The issue**

Development in the South Okanagan and Similkameen Valleys in southern BC has seen a precipitous loss, or degradation of riparian habitat due to flood control, farming, ranching, and urban sprawl. It is widely believed that the BC population of Yellow-breasted Chats is being slowly reduced as a result of this habitat destruction in these valleys. Consequently, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) has designated this population as an endangered species.

#### **Summary**

This conservation plan provides an overview of the biology of Yellow-breasted Chats, discusses the issues that may affect these birds and the habitats that they use, introduces and highlights the some of the initiatives that are addressing some of these issues, and attempts to focus and direct future initiatives that could further address identified concerns. This plan was written in conjunction with the Ministry of Environment, Lands and Parks and a number of action-oriented non-government organizations active in the region and is intended to facilitate work that they engage in and to stimulate future work.

#### **Availability of report:**

This report is available in digital format from the Important Bird Areas Web Page: [www.ibacanada.com](http://www.ibacanada.com).

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### *Executive Summary*

#### **What is an Important Bird Area?**

An Important Bird Area (IBA) is a site providing essential habitat for one or more species of breeding or non-breeding birds. These sites may contain threatened species, endemic species, species representative of a biome, or highly exceptional concentrations of birds.

**The goals of the Canadian IBA program are to:** 1) identify a network of sites that conserve the natural diversity of Canadian bird species; 2) ensure the conservation of sites through partnerships of local stakeholders who develop and implement appropriate on-the-ground conservation plans.

**The purpose of this document** is to help direct and shape stewardship initiatives that are being planned by the South Okanagan Similkameen Conservation Program such that Yellow-breasted Chats are included in these initiatives.

#### **The Osoyoos Oxbows IBA**

The core of the Osoyoos Oxbows IBA (CABC261N) encompasses the South Okanagan Wildlife Management Area (SOWMA). Presently the riparian areas of the IBA support 20% of the BC population of Yellow-breasted Chats; a population that is listed as critically imperilled in BC and nationally threatened. Other noteworthy riparian species that are present at this site include Western Screech Owl and Lewis's Woodpecker. The upland portions of the IBA are also home to a range of other provincially significant species including Lark Sparrow, Grasshopper Sparrow, and Bobolink. Several provincially and nationally significant mammal and herptile species also occur within the IBA. While the IBA is a core area for Yellow-breasted Chat conservation, it is widely acknowledged that for this species to persist in BC, conservation activity will have to occur throughout its historical range.

#### **Why the Yellow-breasted Chat deserves conservation attention?**

It is widely believed that the BC population of Yellow-breasted Chats is being slowly reduced through habitat destruction and as a result, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) has designated this population as an endangered species. The construction of dykes and canals to control flooding is one of the main causes of the loss of suitable Yellow-breasted Chat habitat. In addition, the development (clearing) of the valley bottoms of South Okanagan and Similkameen Valleys for agriculture, orchards, and urban development has also resulted in a significant decrease in the availability of suitable riparian habitat. The maintenance of the current population, let alone restoring it to its historical level, is dependent on a number of factors including stewardship on private lands, the alteration of management practices on provincial Crown land, including the SOWMA, and BC Provincial Parks, and habitat acquisition.

#### **Current Conservation strategies**

Within the IBA the management of the SOWMA is ongoing. After its establishment, parts of the riparian woodlands have been fenced to exclude cattle. In addition, Ducks Unlimited Canada and Ministry of Environment, Lands, and Parks (MELP) worked together on a major re-flooding project to restore some water flow to the marshes and oxbows in 1983. Other initiatives have included fencing, weed control and the installation of interpretative signs. An active riparian stewardship program, initiated in 1997 in by MELP known as the Riparian Restoration of Oxbows in the South Okanagan has worked with interested landowners primarily outside the bounds of the Wildlife Area. In other areas within the historic range of Yellow-breasted Chats, the South Okanagan-Similkameen Conservation Program, a multi-partner initiative of the federal and provincial governments and 17 non-government, conservation and community groups is embarking upon a program to conserve the biodiversity of South Okanagan-

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Similkameen's habitat and to protect its species at risk.

#### **Conservation Goals and objectives**

The goals of this conservation plan are twofold. First, this conservation plan will act as a means by which to help direct and shape stewardship initiatives that are being planned by the South Okanagan Similkameen Conservation Program. It is also hoped that the IBA program in conjunction with Partners in Flight (PIF) can further augment co-operative ventures with local biologists, conservation groups and First Nations groups in the region.

The following specific goals and objectives have been established for the Osoyoos Oxbows IBA and associated areas.

#### *Strategic planning*

Effective Yellow-breasted Chat management will require the Ministry of Forests and the Ministry of Environment, Lands, and Parks to work closely with grazing leaseholders on the crown lands of the IBA in order to begin mitigation work that may be necessary. In addition, a Chat/riparian bird-working group should be formed to provide input to stewardship programs and to continue the work that was initiated by Partners in Flight.

#### *Enhancement/protection*

One of the key components of the conservation of Yellow-breasted Chats in the South Okanagan and Similkameen Valleys will be the reduction of human population impacts on Chat productivity and survivorship by protecting known nest sites, and the enhancement of potential, suitable and degraded habitats.

#### *Outreach and education*

Community outreach is an important component of Yellow-breasted Chat conservation. Outreach and education should occur on a number of different fronts including: the development of a demonstration site accessible to the public; the production of suitable educational materials that describes Yellow-breasted Chat biology and habitat needs; the communication of habitat needs, research results and enhancement trials to both stewardship groups and the general public; and the involvement of the public involvement with ongoing song bird monitoring

#### *Research*

There are two levels of research that should be considered. On a coarse level, there is a need for an up-to-date accounting of the distribution and abundance of Yellow-breasted Chats in South Okanagan and Similkameen Valleys. On a fine scale, research questions that could be addressed should include an assessment of habitat variables at known Chat sites; an examination of habitat use by Chats; and assessment of the nesting/fledging success (productivity and survivorship); and an assessment of cowbird parasitism.

#### *Monitoring*

A long-term monitoring program is necessary to track the status of Yellow-breasted Chats and other riparian birds, to fully ascertain the efficacy of habitat enhancement efforts, and to continually assess the proper operation of enhancement structures such as fences and alternate water sources.

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### ***1. Introduction***

Birds are key components in Canada's ecosystems and bird populations are often used as indicators of overall ecosystem health. The conservation of an area to benefit bird life will also conserve other plants and animals present. The loss and fragmentation of habitat throughout the Americas over the last several decades has resulted in measurable population declines in many bird species in Canada. The future of Canadian wildlife depends on our commitment to provide an adequate amount of good quality habitat throughout their ranges.

In the South Okanagan and Similkameen Valleys in southern BC, the numbers of Yellow-breasted Chats (*Icteria virens auricollis*) have decreased over time (Cadman and Page 1994) to the point where the BC population is considered at risk of being extirpated. The Yellow-breasted Chat is Red Listed (under consideration for Threatened or Endangered Status) in British Columbia and the BC population has been listed as Endangered, by the Committee on the Status of Endangered Wildlife in Canada. The decrease in numbers of this species is linked to the precipitous loss, or degradation of riparian habitat due to flood control, farming, ranching, and urban sprawl. Only 15% of the original riparian habitat remains in the South Okanagan (Sarell 1990). The persistence of the current population is dependent on a number of factors including: stewardship on private land, First Nations Reserve Lands, alteration of management practices on Crown Land (including BC Parks), and on the acquisition of some of the remaining private land. It is believed that the BC population of Yellow-breasted Chats can be maintained at present levels if, and only if, most of the riparian habitat in which it currently breeds is protected through stewardship and acquisition (Dyer, pers. comm.). Restoration of the Yellow-breasted Chat population to historical levels in BC will require the restoration of a substantial portion of the currently unsuitable or degraded riparian habitat in the region.

Presently, the Osoyoos Oxbows IBA encompasses those lands that are under the jurisdiction of either the Ministry of Environment, BC Parks, or The Nature Trust within the bounds of the South Okanagan Wildlife Management Area (SOWMA) and presently supports a significant proportion (>20%) of the BC population of Yellow-breasted Chats. While the IBA is a core area for Yellow-breasted Chat conservation, it is widely acknowledged that for this species to persist in BC, conservation activity will have to occur throughout its historical range. In order for this to happen both short-term and long-term goals have been established. The short-term goal is to maintain the current population by maintaining and enhancing existing occupied habitat. The second, more long-term goal is to recover the population by restoring 25% of the historic habitat in the region. These goals will be accomplished in numerous ways. First, this conservation plan will act as a means by which to help direct and shape stewardship initiatives that are being planned by the South Okanagan Similkameen Conservation Program. It is also hoped that the IBA program in conjunction with Partners in Flight (PIF) can further augment co-operative ventures with local biologists, conservation groups and First Nations groups in the region. To this end the primary goal of the IBA program in the South Okanagan is to help direct and shape stewardship initiatives that are being planned by the South Okanagan - Similkameen Conservation Program.

### ***2. The IBA program***

The IBA program is an international initiative co-ordinated by BirdLife International, a partnership of member-based organizations in over 100 countries seeking to identify and conserve sites important to all bird species worldwide. Through the protection of birds and habitats, they also promote the conservation of the world's biodiversity. There are currently IBA programs in Europe, Africa, the Middle East, Asia, and the Americas.

The Canadian BirdLife co-partners are the Canadian Nature Federation (CNF) and Bird Studies Canada (BSC). The Canadian IBA program is part of the Americas IBA program which includes the United States, Mexico, and 17 countries in Central and South America.

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The goals of the Canadian IBA program are to:

1. identify a network of sites that conserve the natural diversity of Canadian bird species and are critical to the long-term viability of naturally occurring bird populations;
2. determine the type of protection or stewardship required for each site, and ensure the conservation of sites through partnerships of local stakeholders who develop and implement appropriate on-the-ground conservation plans; and
3. establish ongoing local involvement in site protection and monitoring.

IBAs are identified by the presence of birds falling under one or more of the following internationally agreed-upon categories:

1. Sites regularly holding significant numbers of an endangered, threatened, or vulnerable species.
2. Sites regularly holding an endemic species, or species with restricted ranges.
3. Sites regularly holding an assemblage of species largely restricted to a biome.
4. Sites where birds concentrate in significant numbers when breeding, in winter, or during migration.

### ***3. IBA site information***

#### **3.1 Site location**

Presently the core of the Osoyoos Oxbows IBA (CABC261N) encompasses the crown land and lands owned by the Nature Trust of BC within the South Okanagan Wildlife Management Area (SOWMA) and is located in the southern portion of the Okanagan Valley in south-central British Columbia (Latitude: 49° 06' N, Long: 119° 33' W) between the towns of Osoyoos (population 5,500) in the south and Oliver (population 4505) in the north (1). The Osoyoos Oxbows IBA represents approximately 20% of the BC Yellow-breasted Chat population. This area also represents a remnant piece of riparian habitat that at one time extended from the south end of Skaha Lake to the north end of Osoyoos Lake. Similar fragmented riparian habitat exists in the Similkameen Valley from Keremeos south to Chopaka. Eventually it is hoped that this IBA will encompass the riparian habitat and adjacent semi-arid, sandy benches on private land such that the IBA will total approximately 600 ha.

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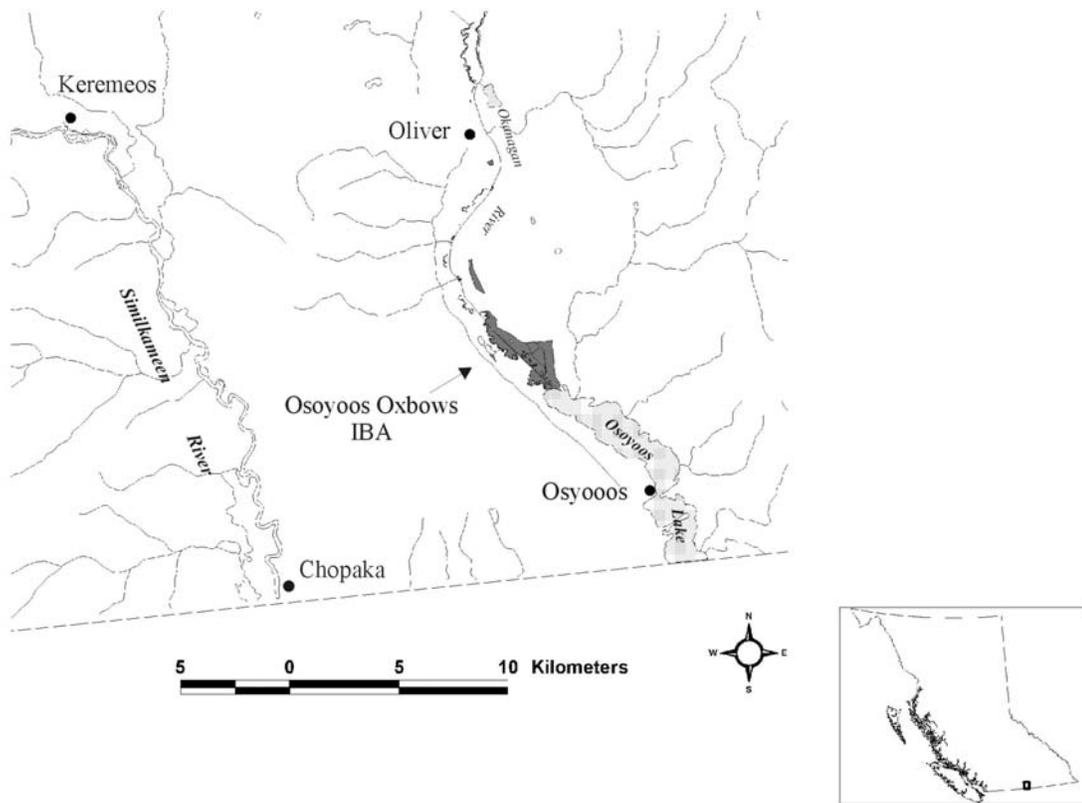


Figure 1. Location of Osoyoos Oxbows IBA.

### 3.2 Ecological Classification

#### 3.2.1 General climatic patterns

The Osoyoos Oxbows IBA and other, similar habitats fall within the Southern Interior Ecoprovince and represent the northern most extension of the Great Basin Bird Conservation Region (Figure 1, Table 1; Demarchi 1996, PIF 1999). This area lies within the rain shadow of the Coast and Cascade Mountains. As a result, it contains some of the warmest and driest areas in the province. In general, the Okanagan and Similkameen Valleys have a dry, continental climate; however, climatic patterns within the valley vary considerably with elevation. The valley bottom has a predominately semiarid steppe climate. Here, temperatures average from  $-7$  to  $-2$  °C in winter and from  $19-22$  °C in summer (Cannings and Hlady 1985). In summer, there are occasional intrusions of hot, dry air from the Great Basin to the south bringing clear skies and very warm temperatures. In some places, particularly at lower elevations at the southern part of the valley, temperatures can exceed  $40$  °C in the summer. Precipitation in the valley bottoms averages from between  $249$  mm in the south (Keremeos) to  $448$  mm in the north (Armstrong) (Cannings et al. 1987).

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Table 1. Ecological Classification of Osoyoos Oxbows IBA and surrounding areas  
(adapted from www.elp.gov.bc.ca/rib/wis/eco)

Classification Division	Name
Ecodomain	Dry
Ecodivision	Semi-arid Steppe Highland
Ecoprovince	Southern Interior
Ecoregion	Okanogan Highland
Ecosection	Southern Okanogan Basin
Biogeoclimatic Zone	Bunchgrass and Ponderosa Pine
Biogeoclimatic Subzones	Very dry, hot bunchgrass (BGxh1) Very dry hot Ponderosa Pine (PPxh1)
Partners in Flight Bird Conservation Region (PIF 1999)	Great Basin

### ***3.2.2 Overall habitat types: Biogeoclimatic zones and subzones, plant associations***

The Osoyoos Oxbows IBA was once part of an extensive riparian area that extended from the south end of Okanogan Lake to the north end of Osoyoos Lake. The majority of the IBA lies on the floodplain of the Okanogan River channel, a canal-like structure bounded by gravel dykes. Much of the IBA falls within the very dry hot bunchgrass subzone (BGxh1) of the Bunchgrass biogeoclimatic zone. There are also isolated pockets of very dry hot ponderosa pine subzone (PPxh1) of the Ponderosa Pine biogeoclimatic zone BC (Lloyd et al. 1990; Table 1). Two of the plant associations that represent suitable Chat habitat, both within the IBA, and in the historic range of the Chat in the South Okanogan (water birch / red-osier dogwood and black cottonwood / water birch), are currently red-listed in the British Columbia (BC Conservation Data Centre 1999).

The IBA is comprised of 5 different habitat types: deciduous woodlands, freshwater marshes, ponds and lakes, dry benchlands, and meadows. Deciduous woods, comprised primarily of water birch, with scattered willow, mountain alder, black cottonwood and trembling aspen, line the oxbows (Cannings and Hlady 1985). A fresh water marsh made up of hardstem bullrushes and cattails lies east of the river mouth where it empties into Osoyoos Lake. This marsh once extended to the west side as well, but has largely been drained or filled on that side (Cannings and Hlady 1985). There are also two ponds within the bounds of the Osoyoos Oxbows IBA. One relatively open and deep pond is located in the southeastern portion of the IBA. The second pond is located in the extreme southwestern portion of the IBA, immediately adjacent the north end of Osoyoos Lake. The meadows within the IBA area covered by either grasses in the hay cutting fields, or by weedy forbs such as clover, with scattered patches of rose and willow. Common reed grass forms a transition zone between these meadows and marshes. The dry sandy bench-lands lie directly to the east of the floodplain, extending at one spot to an outlying rock bluff with associated talus. Currently these areas are vegetated by numerous invasive species such as cheatgrass, diffuse knapweed and Dalmatian toadflax. Remnant indigenous bunchgrass species such as needle and thread grass, sand dropseed and red three-awn, and shrubs including antelope-brush, rabbit brush, and sage occur within the area. Furthermore, portions of this area have been cultivated and planted to alfalfa, but now support mostly introduced grasses and knapweed (Bryan 1990).

## ***4. IBA Species Information***

### **4.1 IBA Species within the Osoyoos Oxbows IBA**

One of the most significant populations of Yellow-breasted Chats in British Columbia can be found within the Osoyoos Oxbows IBA. In 1999, at least 8 birds were recorded, which represents about 20% of

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the British Columbia population (BC Field Ornithological Survey, 1999).

#### **4.2. Natural history of IBA species/Biology of IBA species**

##### **4.2.1 Distribution: North America and British Columbia**

The Yellow-breasted Chat is widespread in North America, with a small portion of its range extending north in to Canada. There are two subspecies, the western Yellow-breasted Chat, *Icteria virens auricollis* (Deppe), which breeds in the southern parts of British Columbia, Alberta, Saskatchewan, the eastern Chat, *I. v. virens* (Linnaeus), which breeds in southern Ontario (Cadman and Page 1994). The population of Chats in BC is considered separately by COSEWIC despite being the same subspecies that is found on the prairies because it occupies a separate biogeographic region (Cadman and Page 1994). In BC, the breeding range of this species is restricted to the riparian areas in the South Okanagan and Similkameen Valleys. Furthermore, almost all known breeding territories are located along the Okanagan and Similkameen Rivers and not in adjacent or adjoining side valleys (Cannings 1995). Outside of this area there is a single breeding record in near Mission in the Fraser Valley (Campbell et al. 2001). Chats winter in young second-growth forest and scrub (Thompson and Nolan 1973, Morse 1989 as cited in Cadman and Page 1994) from southern Texas and Florida, south to western Panama (AOU 1983 as cited Cannings 1995).

##### **4.2.2 Breeding habitat**

Chats return to the Okanagan Valley in the third week of May and nesting begins in the second week in June (Cannings et al. 1987). This species breeds in dense thickets and tangles of tall shrubbery or brush around wood edges, streams, ponds, old overgrown clearings and fields, and in successional regeneration (Thompson and Nolan 1973, Godfrey 1986). In BC, Chats breed in extensive thickets of wild rose, hawthorn, or snowberry bordering deciduous or mixed riparian areas (Cannings et al. 1987). Gibbard and Gibbard (1992) describe preferred breeding habitat as being “dense to very dense wild rose thickets exhibiting vigorous growth and in close proximity to, or containing large shrubs or medium height trees”. Further, Chats were found most often in areas with wide, uninterrupted areas of riparian habitat, with little or no agricultural or developed areas (Zeeman 1997).

Nests are generally located low in dense thickets of roses or other shrubs. Of the eight nest sites found in BC, 5 were in rose bushes, and one each in a willow, a snowberry bush, and in a “hedge” (BC nest records scheme: BCNRS, R. Gibbard field notes as cited in Cannings 1995).

##### **4.2.3 Status and trends: US and the rest of Canada**

Globally the Yellow-breasted Chat is thought to be demonstrably secure and is common throughout most of its range; however, it occurs in low numbers at the edges of its range (Cadman and Page 1994). In Canada populations in Saskatchewan and Alberta are estimated to be over 1000 in each province and each population is considered to be stable (Cadman and Page 1994). The population in Ontario is estimated to be approximately 50 pairs in a few isolated areas, and although rare appears to be in no immediate danger of becoming extirpated (Cadman and Page 1994).

##### **4.2.4 Status and trend: BC**

“The Valley is famous for chats...in spite of their apparent scarcity there were enough of them about to seize upon and occupy any specially desirable locality that might be vacant” (Tavener 1922 as cited in Cannings et al. 1987).

The above quote suggests that at one time Yellow-breasted Chats were encountered on a regular basis. Until 1986 there had been 242 records in the South Okanagan and Similkameen Valleys) of which there were 17 breeding records (Cannings et al. 1987). Since that time Gibbard and Gibbard (1992) visited 119 sites and detected only 14 males at 12 sites. The actual number of individuals detected during this census could be as low as 7 as some of the records were within 100 m of each other. Zeeman (1997) detected 8 individuals at 4 separate sites. The most recent survey conducted by the BC Field

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Ornithologists recorded 19 singing chats in both the South Okanagan and Similkameen Valleys (BCFO 1999).

It is presently believed that there are only 5 suitable breeding areas BC: the lower Simikameen Valley, Vaseux Lake, the Okanagan River between Inkaneep Provincial Park and McIntyre Bluff, the Penticton Indian Reserve, and the SOWMA (Orville Dyer, pers.com.). In recent years, a small breeding population may have become established near Mission in the Lower mainland of BC although the veracity of this site has yet to be determined. Due to low population numbers, limited suitable habitat, and substantial habitat loss, this species has been Red Listed in British Columbia, meaning the species is under consideration for Threatened or Endangered Status, provincially. For similar reasons the BC population of Yellow-breasted Chats have been upgraded to endangered in November 2000 by COSEWIC. Finally, during a recent Partners in Flight workshop in Penticton (March 9-10, 2000), Yellow-breasted Chats were identified as priority landbird species for conservation efforts in the Southern Interior Bird Conservation Region (DeGroot and Bezner, in prep.). Chats were assigned this designation because their breeding habitat is considered very vulnerable to destruction or degradation due to present land use practices and patterns.

#### ***4.2.5 Threats***

It is widely believed that the BC population of Yellow-breasted Chats is being slowly reduced through habitat destruction (Cadman and Page 1994). The construction of dykes and canals to control flooding is one of the main sources of habitat loss in the region. In addition, the development (clearing) of the South Okanagan and Similkameen Valleys for agriculture, orchards, and urban development has also resulted in a significant decrease in the availability of suitable riparian habitat for Chats. Presently only 15% of the original riparian habitat remain in the Okanagan and Similkameen Valleys (Sarell 1990). The remaining riparian habitat is also fragmented due largely to the linear nature of these habitat types. Livestock (cattle and horse) grazing and trampling and weed invasion have degraded other non-cleared sites (Atwood and Scott 1997). Sites that have been degraded by livestock grazing and trampling tend not to revert back to their original state unless mitigative steps are taken (Cadman and Page 1994).

Yellow-breasted Chats are frequently parasitized by Brown-headed Cowbirds. Seventeen of 23 nests found with eggs or young in British Columbia (Campbell et al. 2001), and 31 percent of 42 nests in Missouri were parasitized (Burhans and Thompson 1999). Campbell et al. (2001) note that two chat nests found with 3 cowbird eggs each were both deserted before hatching. Despite the high incidence of parasitism, it is unclear if this parasitism significantly affects the growth of young chats and hence overall productivity (Nolan and Thompson 1973, Burhans and Thompson 1999).

In the South Okanagan, habitat occupied by Chats is the habitat most affected by Cowbird parasitism. In riverine woodlands of the South Okanagan more than 50% of the nests of Warbling Vireos, Song Sparrows, and Yellow Warblers were parasitized by Cowbirds (Ward and Smith 2000). In addition, there has been an increase over time in the average incidence of parasitism in this habitat type (Canning et al. 1987, Ward and Smith 2000). This high level of brood parasitism in concert with further degradation of riparian habitat may lead to localized extinctions of heavily parasitized species (Ward and Smith 2000).

Maintenance of the current population is dependent on a number of factors including stewardship on private land and on First Nations Reserve Lands and the alteration of management practices on provincial Crown land, including the IBA, and BC Parks. Acquisition of some of the remaining habitat on private land may also be required. Restoration of the Yellow-breasted Chat population to historical levels in BC will require the restoration of a substantial portion of the currently unsuitable or degraded riparian habitat in the region.

#### **4.3 Areas of conservation value outside the Osoyoos Oxbows IBA.**

There are numerous areas outside the bounds of the Osoyoos Oxbows IBA that will help maintain Yellow-breasted Chats in the South Okanagan and Similkameen Valleys, if these sites are managed properly. These include: 4 sites on First Nation Reserve lands; Lower Similkameen IR (~ 5 pairs),

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Osoyoos IR (~ 3 pairs) and Penticton IR (~ 2 pairs); two sites on provincial Crown lands (Inkaneep Park and adjacent Section 16 land reserve (~ 1 pair), Vaseux Lake on CWS, BC Parks, BCE lands (~ 1 pr), and three additional sites on private lands (~1 pair at each site).

#### ***5. Other elements of high conservation value***

The Osoyoos Oxbows IBA is home to a wide range of wildlife species. Some of these species are closely associated with the riparian habitat types in the IBA while others are more closely associated with the grassland habitats and agricultural hayfields located on the upland benches. Three other national species of special concern are present at this site: Long-billed Curlew, Western Screech Owl and Barn Owl. Burrowing Owls (nationally endangered) were formerly present at this site. Other noteworthy species that are present at this site include Prairie Falcon, Lewis' Woodpecker, Lark Sparrow, Grasshopper Sparrow, and Bobolink. Of these species Lark Sparrows and Grasshopper Sparrow are red-listed in BC while Bobolinks are blue listed in BC (Table 2).

#### ***6. Land ownership and use***

##### **6.1 Historical**

Prior to European contact, extensive areas of water birch, alder and cottonwood lined the bottomlands along the Okanagan and Similkameen Rivers and associated creek and lakeshores where soil and drainage were suitable. Further, cattail and bullrush marshes covered the lowlands at the ends of the larger lakes. Extensive areas of wet meadows could also be found adjacent to these wetlands. Grasslands dominated by bluebunch wheatgrass, or rough fescue covered the dry benches and hillsides above the wetter, lowlands (Cannings et al. 1987). These areas in the South Okanagan and Similkameen Valleys began to change in the late 1800's. The extensive meadows and rolling grasslands in both valleys drew ranchers to the region to raise beef for the growing human population on the Pacific Coast (Cannings et al. 1987).

During this time the current IBA was part of a larger, privately owed ranch (the J.C. Haynes Cattle Ranch ~ 8900 ha). This ranch eventually became part of a much larger ranch when it was passed on to T. Ellis in 1923. After the First World War portions of the Ellis Ranch were purchased by the Crown to make agricultural lands available to returning servicemen. Most of the best agricultural land was purchased and cultivated for farming shortly after the establishment of the South Okanagan Lands Project in 1923. The less suitable lands were leased for cattle grazing and hay production. It is these less suitable agricultural lands that presently make up the Osoyoos Oxbows IBA (Bryan 1990).

Prior to the late 1950's, the Okanagan River meandered unimpeded between Skaha and Osoyoos Lakes. In 1958 the Okanagan River Flood Control Project was completed effectively shortening the active river channel from approximately 90 km to 50 km, and cutting off numerous sections of the old river channel from the new linear channel within the IBA. All but one of the resultant oxbows have direct, controlled intakes via 0.6 m culverts from the river channel and are hence considered as charged. The lone oxbow that is not connected directly to the river receives water via seepage from the main river channel. All oxbows except one have direct outlets to the river channel that are equipped with flap gates. The lone oxbow that does not have a direct outlet to the river channel empties via seepage into Osoyoos Lake (Cannings and Hlady 1985). The construction of large dikes associated with flood control and drainage resulted in the direct loss of valuable riparian habitat and caused decline of similar habitat in other areas.

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Table 2. Other elements of high conservation value in the vicinity of the Osoyoos Oxbows IBA.

Species	National status <sup>1</sup>	Provincial Status	MELP identified wildlife species <sup>2</sup>
<b>Birds</b>			
Western Screech-owl, <i>macfarlanei</i>		Red	Y
Barn Owl	SC	Blue	Y
Prairie Falcon		Red	Y
Lewis's Woodpecker	SC	Blue	Y
Long-billed Curlew	SC	Blue	Y
Lark Sparrow		Red	Y
Grasshopper Sparrow		Red	Y
Bobolink		Blue	Y
<b>Mammals</b>			
Pallid bat	TH	Red	Y
Spotted bat	SC	Blue	Y
Western harvest mouse	SC	Blue	N
Great Basin pocket mouse		Blue	N
<b>Herptiles</b>			
Painted Turtle		Blue	N
Great Basin Spadefoot Toad	SC	Blue	Y
Night Snake		Red	Y
Racer		Blue	Y
Gopher Snake		Blue	Y
Western Rattlesnake		Blue	Y

<sup>1</sup> SC= Special concern, TH=Threatened

<sup>2</sup> MELP = Ministry of Environment, Lands and Parks

The west side of the area, particularly south of Road 22, has been altered by attempts to drain and fill the wetlands in order to sell 10-acre lots on the site. Elsewhere, clearing of riparian woodland has taken place to maximize pasture production. Some parts of the riparian woodlands have been fenced to exclude cattle, and a major re-flooding project to restore some water flow to the marshes and oxbows was undertaken by the British Columbia Wildlife Branch and Ducks Unlimited (Cannings and Hlady 1985).

The marshes at the north end of Osoyoos Lake represent one of the last remnants of a once significant chain of wetlands found in the valley bottom of the Okanagan. These wetlands harboured species such as American Bittern, Northern Harrier, Virginia Rail and Yellow-headed Blackbird. The easy access along Highway 97 and the high diversity of birds and habitats makes the Osoyoos Oxbows one of the premier birding sites in Canada. After Vaseux Lake (about 20 km to the north), it has the best cross-valley connectivity of natural habitats in the Okanagan Valley

### 6.2 Current

Human population growth and associated activities such as agriculture, irrigation, flood control, and urbanization have resulted in a significant reduction in riparian habitat resulting in it being identified as a priority habitat for conservation activity in the South Okanagan Valley (CWS 2000). Presently, only 15 % of riparian habitat in the Okanagan and Similkameen Valleys remains (Sarell 1990). In addition, there is only between 10 and 15% of the original marshland between Penticton and Osoyoos (Cannings et al. 1987).

The establishment of the SOWMA brought this large area of riparian habitat under control of the Crown (Ministry of Environment, Lands and Parks (MELP)). This designation has halted any further

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significant changes to the existing riparian habitat. There was, however, a long history of grazing in the oxbows prior to the establishment of the SOWMA. These historical land use practices were recognized and incorporated into the present management of the SOWMA. As a result, the entire area that encompasses the SOWMA, and hence the core area of the IBA, is subject to either grazing pressure or cultivation for the production of hay for cattle (Bryan 1990). These activities, while not necessarily at conflict with effective management of the riparian areas within the IBA, have none the less led to degradation of certain areas within the IBA such as fragmentation of dense rose patches used for nesting due to trampling and browsing.

#### ***7. Conservation management achieved at the IBA site***

Presently, management of the Osoyoos Oxbows IBA, or SOWMA is ongoing. After its establishment, parts of the riparian woodlands have been fenced to exclude cattle. In addition, Ducks Unlimited Canada and MELP worked together on a major re-flooding project to restore some water flow to the marshes and oxbows in 1983 (Bryan 1990). Further, old fences have been maintained and some additional fences have been installed in the past 5 years. There is also an annual treatment of problem weeds in portions of the area. Interpretative signs have also been installed since the creation of the wildlife management area (Dyer, pers. comm.). An active riparian stewardship program, initiated in 1997 in by MELP known as the Riparian Restoration of Oxbows in the South Okanagan (MELP RRP) has worked with interested landowners primarily outside the bounds of the IBA that has focused on landowners living between McIntyre Bluff and Osoyoos Lake. The goals of this project were to maintain the current distribution, species composition, physical structure, and ecological processes of undamaged occurrences of this plant community, and to enhance a minimum of 5% of the existing riparian habitat associated with remnant oxbows and the Okanagan River channel. It is primarily a landowner contact program that has also included 3 enhancement projects of which one is a demonstration project.

#### ***8. Participants in activities within the IBA and surrounding areas***

At this time there numerous organizations have been involved in conservation activities in the South Okanagan and Similkameen Valleys. These include:

- The **Ministry of Environment, Lands and Parks, Wildlife Program** is the agency responsible for the management of wildlife needs within a major part of the IBA itself. MELP has also overseen an active riparian stewardship program (Riparian Restoration of Oxbows in the South Okanagan).
- The **Ministry of Forests** is responsible for grazing activities that occur within the bounds of the IBA.
- **South Okanagan Similkameen Conservation Program (SOSCP):** a partnership that is coordinating conservation activities in the South Okanagan and lower Similkameen. There are 21 signatories to this program and are listed in Appendix 1.
- The **South Okanagan Similkameen Stewardship Program (SOSSP)** works with private landowners to conserve and enhance threatened wildlife species and habitats on their lands. This program includes riparian/wetland areas, but also grasslands and lower elevation ponderosa pine/IDF habitats.
- The **Federation of BC Naturalists** (Thompson-Okanagan region) is a naturalist organizations dedicated to fostering an appreciation and understanding of the natural environment, so that it may be used wisely and maintained for future generations.
- **The Land Conservancy of BC (TLC)** holds Conservation Covenants, purchases land and delivers stewardship programs throughout BC. Where appropriate, it will pass purchased land to other agencies for management. TLC will, on occasion, retain land and operate nature preserves.

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- The **Nature Trust of BC** is a landowner in the area and is actively involved in the cooperative management of grassland and riparian areas
- The **Nature Conservancy of Canada** is actively involved in land acquisition and conservation in the area.
- The **Okanagan Nation Fisheries Commission (ONFC)** engages in the enhancement and rehabilitation projects for the protection of various fish stocks in the Okanagan basin
- The **Okanagan/Similkameen Conservation Alliance (OSCA)** is an organization that is involved with community development and educational programs that address conservation needs in the area. OSCA will play a lead role in outreach team of the SOSCP.
- **Ducks Unlimited** has been involved in restoration work within the SOWMA.
- The **Canadian Wildlife Service/Environment Canada** is a landowner in the area as is actively involved in management issues in the South Okanagan.
- The **First Nations Okanagan Similkameen Environmental Protection Society (FNOSEPS)** has been involved in watershed restoration, research, and stewardship initiatives in the area.
- **BC Parks** has three provincial parks in the south Okanagan that represent potential Yellow-breasted Chat habitat. One site in particular, Inkaneep Provincial Park is a known Chat breeding site.

### ***9. Opportunities***

Yellow-breasted Chats are considered to be one of the indicators of the health of a certain type of riparian habitat within the South Okanagan and Similkameen Valleys. Their presence is indicative of a relatively undisturbed, relatively unfragmented riparian habitat. The designation of the Osoyoos Oxbows IBA represents a further rationale for effective riparian management in this area. This designation may act as a catalyst for future enhancement activities by serving as a demonstration site for riparian enhancement. This designation will benefit not only Yellow-breasted Chats, but also a variety of wildlife species that are dependent upon a healthy riparian system. This will be extremely beneficial to the area as a whole as the Okanagan Valley in general, and the SOWMA/Osoyoos Oxbows IBA specifically are destination birding spots within both BC and Canada. Further enhancement of the Osoyoos Oxbows IBA/SOWMA will hopefully lead to expanded natural history/birding opportunities in this area. Enhancement and stewardship work will hopefully be expanded in the Osoyoos Oxbows IBA to include the semi-arid benchlands and wet meadows.

The southern interior of BC, and the south Okanagan in particular, has a long history of active conservation activities. Currently, a partnership of several key conservation organizations has been assembled and is planning a large-scale initiative that will include stewardship and land acquisition. Apart from the key players in the partnership, several organizations have the capacity to be delivery agents for conservation related activities. Furthermore, most of the basic tools for enhancement activities are in place in the region. In particular, Atwood and Scott (1997) have synthesised the key aspects of a restoration program in the valley.

The Osoyoos Oxbows IBA initiative is well integrated with the BC Partners in Flight (PIF) program. This integration should yield long term benefits for conservation efforts in the entire riparian areas of the South Okanagan and Similkameen Valleys. In other words, the integration of these two programs should facilitate the attraction of research, monitoring and enhancement/stewardship funds for riparian habitat in the area.

### ***10. Conservation Goals and Objectives***

The conservation goals and objectives for the BC population of Yellow-breasted Chat are relevant to areas both within and outside the bounds of the Osoyoos Oxbows IBA. They can be grouped into 5 broad categories: strategic planning, protection and enhancement, outreach and education, research, monitoring and enhancement. Summaries of these goals and objectives can be found in Table 3.

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#### **10.1 Strategic planning**

Effective conservation of Yellow-breasted Chats will require the co-operation of numerous different agencies or organizations. Inside the bounds of the Osoyoos Oxbows IBA MELP and MOF staff will be required to co-operate in order to mitigate the impacts of grazing within the IBA. These agencies must seek the support of grazing lease holders before beginning mitigation work which may include the creation and carefully planned placement of alternate water sources and/or fencing of selected areas, accompanied by experimental plantings of rose if needed. This level of planning has been initiated and will continue in the future. Effective conservation of Yellow-breasted Chats in BC will also require a broadening of the scope of the participants. This level of planning has been initiated in large part by the South Okanagan Similkameen Conservation Program.

Due to the extensive efforts of the South Okanagan Similkameen Conservation Program, it is clear that stewardship related activities will continue within the South Okanagan area for some time to come. A critical component of conservation of Yellow-breasted Chats in this area is the need for increased understanding of the habitat needs of this and other riparian species, and to ensure that this information is adequately disseminated. As a result, it is important that a Yellow-breasted Chat working group or riparian songbird group be established in order to both focus enhancement activity and to direct research and monitoring needs. Of particular importance is the need to provide information pertaining to Chat distribution and habitat needs to the stewardship organizations in this area. A core group of individuals presently represents an ad hoc Chat/songbird working group, but this group should be formalized. It is also extremely important that the Chat/songbird working group be closely associated with the PIF initiatives presently being formulated in the Southern Interior Bird Conservation Region. Participation with the existing PIF working group in this area will enhance the probability of securing funding for future research and monitoring projects, and ensure an efficient, co-ordinated scientific approach toward the conservation of Chat populations and habitats throughout the Chat's entire range in BC.

#### **10.2 Enhancement/protection**

One of the key components of the conservation of Yellow-breasted Chats in the South Okanagan and Similkameen Valleys will be the reduction of human population impacts on Chat productivity and survivorship by protecting and managing known nest sites. In addition, enhancement of potential, suitable and degraded Chat habitat should also be encouraged. This must occur on both Crown Land and on private property.

##### ***10.2.1 Known Chat sites***

Within the IBA, known Chat nest sites and sites regularly occupied by adult birds should be identified and appropriate actions (e.g., fencing, alteration of grazing regimes) should be initiated. These actions are planned for the 2000 season. An inventory project is ongoing, as are negotiations between MELP and MOF. Eleven Wildlife Habitat Areas (WHAs) have been identified by BC Environment, based on data collected through an IBA Action Fund Grant and other information. WHAs will be submitted in fall 2000 as part of the Forest Practices Code Act, Managing Identified Wildlife Strategy. BC Parks has been contacted and suggestions have been made for the management of known Chat sites within Provincial Parks (e.g., Inkaneep Provincial Park). This dialogue should remain open especially as results from future research are known. Work presently being conducted by the MELP RRP has made large strides in the enhancement of riparian habitat on private lands, but this work should be continued and expanded. Further, stewardship initiatives on First Nation Reserve lands are critical for the successful management of Chats in this area. The use of conservation covenants for the protection of known Chat nesting sites should also be considered for use on private lands.

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#### ***10.2.2 Potential Chat sites***

Some of the provincial parks in the region (e.g., Okanagan Lake Provincial Park) likely represented historical Yellow-breasted Chat habitat. BC Parks should be encouraged to alter some of the management of their lakeside parks for the benefit of Yellow-breasted Chats (e.g., discourage the use of lawns in favour of native vegetation). Similarly, private landowners with potential Yellow-breasted Chat habitat should also be approached. As previously stated the work presently being conducted by the MELP RRP has made large strides in this domain but this work should be continued and expanded. Further, stewardship initiatives on First Nation Reserve lands are critical for the management of Chats in this area. The use of conservation covenants for the protection of potential sites should also be considered for use on private lands.

#### **10.3 Outreach and education**

Community outreach is an important component of Yellow-breasted Chat conservation. Outreach and education should occur on a number of different fronts.

##### ***10.3.1 Development of a demonstration site***

Consideration should be given to the development of a demonstration site of enhancement riparian habitat for Chats. It would be important that any demonstration site designed for this purpose be on land easily accessible to the public. One of the best candidate sites would be the crown land within the SOWMA.

##### ***10.3.2 Production of suitable outreach/educational materials***

Ongoing riparian stewardship does not presently have material that describes Yellow-breasted Chat biology or habitat needs. Funds should be sought for the development of a Yellow-breasted Chat fact sheet that can accompany present and future riparian landowner contact programs.

##### ***10.3.3 Communication of habitat needs, research results and enhancement trials***

The communication of habitat needs of riparian bird species, particularly Yellow-breasted Chats, and the results of any pertinent song bird research, and habitat enhancement trials/projects should be communicated to all organizations participating in riparian conservation in the region by means of a riparian workshop or meeting. Workshops or meetings should take place on a regular basis (e.g., annually or semi-annually). In addition the dissemination of the work undertaken by the IBA program and existing stewardship initiatives should continue to be distributed through local media.

##### ***10.3.4 Public involvement with ongoing monitoring***

Consideration should be given to the development of a Yellow-breasted Chat and/or riparian bird-monitoring program. This program would require the training of local citizens in the sampling of birds both by sight and song (see Section 10.5.1).

#### **10.4 Research**

There are two main areas of research that should be addressed. These include research focussed on the assessment of the availability of suitable Chat habitat and Yellow-breasted Chat biology.

##### ***10.4.1 Availability of suitable Yellow-breasted Chat habitat***

MELP in Penticton has done extensive mapping of suitable habitat throughout both the South Okanagan and Similkameen Valleys encompassing both Crown and private lands; however, these maps have yet to be thoroughly ground-truthed. As a result, funding should be sought to determine if these sites are currently suitable Chat habitat. This will help direct areas where enhancement for Yellow-breasted Chat should be focussed

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#### ***10.4.1 Yellow-breasted Chat biology***

There are two levels of research that should be considered. On a coarse level, there is a need for an up to date accounting of the distribution and abundance of Yellow-breasted Chats in South Okanagan and Similkameen Valleys. This is of critical importance due to the increased activity of stewardship related activities in the region. On a fine scale, research questions that could be addressed should include:

- the quantification of habitat variables at known nesting sites (e.g., vegetation structure, size of habitat patch, etc.);
- detailed habitat use information including home range size, and specific habitat use within known territories;
- an assessment of productivity and factors affecting nest success, e.g., nest predation and cowbird parasitism, in relation to habitat structure
- an assessment of juvenile and adult survivorship/site return rates

Any research that is aimed at determining nesting and fledgling success should consider the potential negative impacts of this research on the small breeding population in the region. In other words, it is likely that an indirect assessment of nesting/fledgling success (e.g., observing adult birds at known sites and watching for evidence of them feeding young, documenting the number of post fledgling young at nesting sites) only be considered at this time. Similarly, the incidence of cowbird should also be determined indirectly. Past research on the incidence of cowbird parasitism on more abundant bird species (e.g., Song Sparrows, Yellow Warblers) could be used as an index of cowbird parasitism pressure (Ward and Smith 2000). Replication of this research should be considered.

#### **10.5 Monitoring**

A long-term monitoring program is necessary to both track the status of this Yellow-breasted Chat population and to fully ascertain the efficacy of habitat enhancement efforts. There are three main monitoring issues that should be addressed: Yellow-breasted Chats population status; changes in habitat brought about by enhancement activities; continued functioning of enhancement tools.

##### ***10.5.1 Yellow-breasted Chats***

The monitoring of Chats should be done at both the coarse and fine scales. On a coarse scale, it will be extremely important to develop an annual monitoring program of Chats so that the status of this species can be documented over time and to determine if new individuals are colonizing areas that have undergone enhancement. In other words, it will be necessary to determine if changes to habitat, originated by enhancement, have produced any changes in the Yellow-breasted Chat population. Furthermore, the monitoring of nest sites to determine nest success relative to changes in habitat attributes, and the potential influence of other factors such as Brown-headed Cowbirds, livestock grazing, and potential disturbance from bird watchers should also be considered in order to fully ascertain whether enhancement is producing an increase in the breeding population of Yellow-breasted Chats)

##### ***10.5.2 Vegetation response to enhancement activities***

It will be necessary to determine if enhancement efforts produce the desired change in habitat (composition, structure and function). Implicit in this aspect of monitoring is to allow for habitat changes to occur over time. Results will help to direct the protocol for future habitat enhancement efforts

##### ***10.5.3 Proper operation of enhancement structures***

It is important to ensure that any enhancement project that relies upon fencing or the placement of alternate water sources be periodically inspected in order to make repairs as needed. Ignoring this aspect of any Yellow-breasted Chat recovery program would be inadvisable.

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Table 3. Conservation Goals and Objectives

<b>Category</b>	<b>Objective</b>	<b>Action Required</b>	<b>Status</b>	<b>Key contact</b>
<b>Strategic planning</b>	mitigation of impacts of grazing within IBA	Work with grazing lease holders and begin appropriate mitigation (e.g., carefully planned placement of alternate water sources and/or fencing of selected	In progress	MELP, MOF
	Broaden scope of the participants of larger scale (outside IBA)	Contact and work with members of SOSCP	Ongoing	MELP, CWS, OSCA, TLC, ONFC, PIF
	Focus enhancement work in riparian areas	Develop a YBCH working group/ recovery team to help guide inventory and enhancement	Ongoing	OSCA, SOSSP, MELP, CWS, PIF, UBC
	Improve likelihood of securing funding for future projects	Continue to work with PIF in order to help shape riparian working group goals and objectives	Ongoing	PIF, CWS, MELP, BCIBA, FBCN
<b>Enhancement /protection</b>	Protect habitat and reduce human population impacts at known nest sites	<p><b>On crown land</b> identify YBCH sites and fence where needed. Work with BC Parks to manage existing YBCH habitat in existing provincial parks.</p> <p><b>On private property</b>, discuss options with land owners and implement protection measures where possible—includes First Nations Reserves. Also consider the use of conservation covenants</p>	<p>Ongoing</p> <p>Ongoing and needed</p>	<p>MELP, CWS, MOF, BC Parks</p> <p>MELP, SOSCP TNT, TLC, NCC, SOSSP</p>

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Table 3. Conservation Goals and Objectives continued

<b>Category</b>	<b>Objective</b>	<b>Action Required</b>	<b>Status</b>	<b>Key contact</b>
<b>Enhancement /protection</b>	Evaluation of potential habitat-assessment of the impact of livestock	Ground truth habitat suitability/capability maps	Planned	MELP, PIF, BCIBA
	Enhancement of potential habitat	<b>On crown land</b> , particularly BC Parks, engage in active enhancement of potential YBCH sites (Okanagan Lake Park)  <b>On private property</b> , discuss options with land owners and implement enhancement where possible—includes First Nations Reserves. Work in conjunction with ongoing stewardship programs. Also consider the use of conservation covenants	Ongoing  Ongoing and needed	MELP, BCIBA, BC Parks  SOSSP, SOSCP, TLC, NCC
<b>Outreach</b>	Further riparian enhancement activities	Develop a series of demonstration sites for YBCH habitat enhancement	Needed	MELP, SOSSP, CWS, OSFC
	Yellow-breasted Chat/riparian educational material	Develop a YBCH identification and enhancement pamphlet to accompany existing riparian habitat enhancement material	Planned	MELP
	Communicate results of enhancement/research work	Hold a YBCH/riparian workshop to discuss work conducted and directions for future work	1 planned others needed	MELP, CWS, SOSCP
	Involve public in riparian bird monitoring	Develop appropriate protocol, conduct training sessions	Planned	MELP

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Table 3. Conservation Goals and Objectives continued

<b>Category</b>	<b>Objective</b>	<b>Action Required</b>	<b>Status</b>	<b>Key contact</b>
<b>Research</b>	Update status of YBCH in South Okanagan and Similkameen Valleys	Further inventory of YBCH within riparian habitat both outside and inside IBA	Proposed	MELP, PIF, BCIBA
	Evaluation of potential habitat-assessment of the impact of livestock	Ground truth habitat suitability/capability maps	Needed	MELP, PIF, BCIBA
	Determine coarse scale YBCH habitat requirements	Quantify habitat (important vegetation, size of habitat patch, etc.) at known nesting sites	Proposed	MELP, PIF, BCIBA
	Determine fine scale habitat requirements	Determine detailed habitat use information including home range size and feeding sites/species	Proposed	MELP, PIF, BCIBA
	Determine productivity and survivorship of nesting YBCH	Assessment of nesting/fledging success	Proposed	MELP, PIF, BCIBA
	Determine external factors that influence YBCH productivity	Assessment of cowbird parasitism in relation to habitat structure	Proposed	MELP, PIF, BCIBA
<b>Monitoring (both within and outside IBA)</b>	Tracking of YBCH population trends	Long term monitoring of YBCH populations	Proposed	MELP, PIF, FBCN
	Determine if enhancement is producing desired changes in YBCH populations			
	Monitor efficacy of habitat enhancement activity	Periodic examination of enhanced sites to quantify habitat changes and to monitor status of fenced areas	Planned	CWS

BCIBA=BC IBA program, CWS= Canadian Wildlife Service , FBCN=Federation of BC Naturalists, MELP= Ministry of Environment, Lands and Parks, MOF= Ministry of Forests, OSCA,= Okanagan Similkameen Conservation Alliance, ONFC = Okanagan Nation Fisheries Commission, SOSCP= South Okanagan Similkameen Conservation Program, SOSSP= South Okanagan/Similkameen Stewardship Program, TLC= the Land Conservancy of BC, TNT= The Nature Trust

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### **11. Evaluating Success**

The success of this plan can be measured in two different ways. First it will be important to secure funds for Yellow-breasted Chat research, and also to develop a long-term monitoring program. It will also be important to ensure that the information gathered from both research and monitoring programs be passed on to the SOSCP. The second way in which the success of this plan can be measured will be the extent to which Yellow-breasted Chats are incorporated into stewardship activities in the South Okanagan and Similkameen Valleys. Several important steps have already been taken towards this end and more are in their early planning stages.

### **12. Acknowledgments**

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***Appendix 1. Signatories to the South Okanagan Similkameen Conservation Program.***

Environment Canada  
BC Ministry of Environment, Lands, and Parks  
Habitat Conservation Trust Fund  
Ministry of Environment, Lands and Parks  
The Nature Trust of British Columbia  
Nature Conservancy of Canada  
Nature Conservancy (US)  
The Land Conservancy of British Columbia  
Osoyoos Desert Society  
Ducks Unlimited, BC  
Okanagan Similkameen Conservation Alliance  
Okanagan Region Wildlife Heritage Fund Society  
Grassland Conservation Council of BC  
BC Conservation Foundation  
Federation of BC Naturalists (Thompson-Okanagan region)  
Okanagan Similkameen Parks Society  
BC Wildlife Federation  
Canadian Parks and Wilderness Society  
The Royal BC Museum

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***Appendix 2. Common and latin names used in this text***

**Plants**

ponderosa pine	<i>Pinus ponderosa</i>
water birch	<i>Betula occidentalis</i>
willow	<i>Salix spp.</i>
black cottonwood	<i>Populus. balsamifera trichocarpa</i>
trembling aspen	<i>Populus tremuloides</i>
red-osier dogwood	<i>Cornus stolonifera</i>
mountain alder	<i>Alnus incana</i>
wild rose	<i>Rosa woodsii</i>
antelope-brush	<i>Purshia tridentate</i>
rabbit brush	<i>Chrysothamnus nauseosus</i>
sage	<i>Artemisia tridentate</i>
alfalfa	<i>Medicago sativa</i>
hawthorn	<i>Crataegus spp</i>
snowberry	<i>Symphoricarpos albus</i>
hardstem bullrush	<i>Scirpus acutus</i>
cattail	<i>Thypha latifolia</i>
cheatgrass	<i>Bromus tectorum</i>
diffuse knapweed	<i>Centaurea diffusa</i>
Dalmatian toadflax	<i>Linaria dalmatica</i>
needle and thread grass	<i>Stipa comata</i>
sand dropseed	<i>Sporobolus cryptandus</i>
red three-awn	<i>Aristida longiseta</i>

**Herptiles**

Painted Turtle	<i>Chrysemys picta</i>
Great Basin Spadefoot Toad	<i>Spea intermontana</i>
Night Snake	<i>Hypsiglena torquata</i>
Racer	<i>Coluber constrictor</i>
Gopher Snake	<i>Pituophis catenifer catenifer</i>
Western Rattlesnake	<i>Crotalus viridis</i>

**Birds**

Warbling Vireo	<i>Vireo gilvus</i>
Song Sparrow	<i>Melospiza melodia</i>
Yellow Warbler	<i>Dendroica petechia</i>
Brown-headed Cowbird	<i>Molothrus ater</i>
Long-billed Curlew	<i>Numenius americanus</i>
Western Screech Owl	<i>Otus kennicottii macfarlanei</i>
Barn Owl	<i>Tyto alba</i>
Prairie Falcon	<i>Falco mexicanus</i>
Lewis' Woodpecker	<i>Melanerpes lewis</i>
Lark Sparrow	<i>Chondestes grammacus</i>
Grasshopper Sparrow	<i>Ammodramus savannarum</i>
Bobolink	<i>Dolichonyx oryzivorus</i>

**Mammals**

Pallid bat	<i>Antrozous pallidus</i>
Spotted bat	<i>Euderma maculatum</i>
Western harvest mouse	<i>Reithrodontomys megalotis</i>
Great Basin pocket mouse	<i>Perognathus parvus</i>

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### ***Appendix 3: IBA Canada Partners***

#### **Federation of BC Naturalists (FBCN)**

“To know nature and to keep it worth knowing”

The Federation of BC Naturalists is a family of naturalist organizations dedicated to fostering an appreciation and understanding of our natural environment, so that it may be used wisely and maintained for future generations. We believe that negotiation and cooperation are ways to build a lasting conservation strategy in British Columbia. Through partnerships with other organizations and governments we strive to further conservation and natural history education in the province of BC. Our membership is open without prejudice to all who share our goals.

The FBCN was founded in 1969, although many of its member clubs have been in existence for much longer. There are currently 51 federated and affiliated member clubs and approximately 5,300 members from communities all around British Columbia. The FBCN is an affiliate of the Canadian Nature Federation. The FBCN is active in nature education and conservation, and is the British Columbia lead agency for two major projects: The Living by Water Project and the BC Important Bird Areas Program. The FBCN website is [www.naturalists.bc.ca](http://www.naturalists.bc.ca)

#### **WBT Wild Bird Trust of BC**

Wild Bird Trust is non-profit society dedicated to the protection of birds and their habitats, on the principle that all wildlife must benefit. This mission is carried out through the establishment and management of wildlife sanctuaries, the production of various publications that address conservation and management concerns for birds and their habitats throughout the Province, the housing of the largest regional electronic database and reference library for birds, reptiles and amphibians in the Province, school- and home-based wildlife education programs, volunteer-based inventory programs and an active Heron stewardship program in the Georgia Basin of BC.

#### **BirdLife International**

A pioneer in its field, BirdLife International (BL) is the first non-government organization dedicated to promoting world-wide interest in and concern for the conservation of all birds and the special contribution they make to global biodiversity. BirdLife operates as a partnership of non-governmental conservation organizations, grouped together within geographic regions (e.g. Europe, Africa, Americas) for the purpose of planning and implementing regional programs. These organizations provide a link to on-the-ground conservation projects that involve local people with local expertise and knowledge. There are currently 20 countries involved in the Americas program throughout North, Central and South America.

For further information about BirdLife International, check the following web site: <http://www.birdlife.net/>.

The Canadian Important Bird Areas Program has been undertaken by a partnership of two lead agencies. The Canadian Nature Federation and Bird Studies Canada are the Canadian BirdLife International partners.

#### **The Canadian Nature Federation (CNF)**

The Canadian Nature Federation is a national conservation organization with a mission to be Canada's voice for the protection of nature, its diversity, and the processes that sustain it. The CNF represents the naturalist community and works closely with our provincial, territorial and local affiliated naturalists organizations to directly reach 100,000 Canadians. The strength of our grassroots naturalists' network allows us to work effectively and knowledgeably on national conservation issues that affect a diversity of ecosystems and human populations in Canada. The CNF also works in partnership with other environmental organizations, government and industry, wherever possible.

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Our approach is open and cooperative while remaining firm in our goal of developing ecologically-sound solutions to conservation problems. CNF's web site is <http://www.cnf.ca>.

#### **Bird Studies Canada (BSC)**

The mission of Bird Studies Canada is to advance the understanding, appreciation and conservation of wild birds and their habitats, in Canada and elsewhere, through studies that engage the skills, enthusiasm and support of its members, volunteers, staff and the interested public. Bird Studies Canada believes that thousands of volunteers working together, with the guidance of a small group of professionals, can accomplish much more than could the two groups working independently. Current programs collectively involve over 10,000 volunteer participants from across Canada.

Bird Studies Canada is recognized nation-wide as a leading and respected not-for-profit conservation organization dedicated to the study and understanding of wild birds and their habitats. Bird Studies Canada's web site is [www.bsc-eoc.org/](http://www.bsc-eoc.org/).