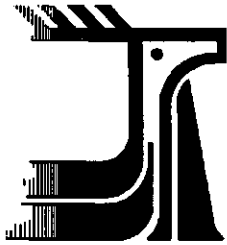


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COMMITTEE ON THE
STATUS OF ENDANGERED
WILDLIFE IN CANADA

OTTAWA, ONT. K1A 0H3
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COMITÉ SUR LE STATUT
DES ESPÈCES MENACÉES
DE DISPARITION AU
CANADA

OTTAWA (ONT.) K1A 0H3
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**STATUS REPORT ON THE RED-HEADED WOODPECKER
*MELANERPES ERYTHROCEPHALUS***

IN CANADA

BY

ANNETTE M. PAGE

**STATUS ASSIGNED IN 1996
VULNERABLE**

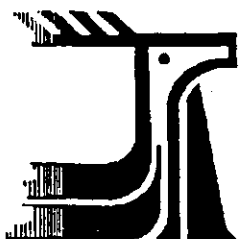
REASON: A SIGNIFICANT DECLINE IN A LARGE PORTION OF ITS
CANADIAN RANGE.

OCCURRENCE: MANITOBA, SASKATCHEWAN, ONTARIO, AND QUEBEC

COSEWIC - A committee of representatives from
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Canada.

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JUNE 1994

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STATUS REPORT ON THE RED-HEADED WOODPECKER
MELANERPES ERYTHROCEPHALUS

IN CANADA

BY

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STATUS ASSIGNED IN 1996
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ABSTRACT

The Red-headed Woodpecker (*Melanerpes erythrocephalus*) breeds and winters exclusively in North America. In Canada, the species breeds in southern Saskatchewan, southern Manitoba, southern Ontario and southwestern Quebec (and formerly southern New Brunswick). There are two subspecies of Red-headed Woodpeckers in Canada, *M. e. caurinus* Brodkorb, which occupies the western part of the breeding range east to western Ontario, and *M. e. erythrocephalus* (Linnaeus), which breeds from southern Ontario eastward.

Although the Nature Conservancy considers the Red-headed Woodpecker to be demonstrably secure globally, the species has declined throughout most of its range in North America throughout this century, primarily due to the loss of nesting habitat as a result of firewood cutting, forest clearing, and "urban cleansing" (removing dead trees and branches), and the introduction of the European Starling and the resulting nest site competition. The Red-headed Woodpecker was on American Birds' Blue List from 1972 until 1981, and was on the "Special Concerns" list in 1982 and 1986. More importantly, Breeding Bird Survey data (1966-1994 and 1980-1994) indicate that the species has declined significantly throughout North America (at an average rate of 1.9% and 4.4% per year, respectively). Canadian BBS data indicate a decline (although the trends were not significant, and were based on fewer than 50 routes which may make them suspect), at an average rate of 2.2% per year from 1966 to 1994, and 4.2% per year from 1980-1994 (B. Petejohn pers. comm. 1995). In addition, the Red-headed Woodpecker has declined in all states bordering its Canadian breeding range, as well as in several other nearby states.

In Canada, a national Nature Conservancy Heritage Rank has not been assigned to the Red-headed Woodpecker. However, the species is not considered to be common anywhere in the nation except for perhaps extreme southern Ontario. The Red-headed Woodpecker breeds rarely and very locally in southern Saskatchewan, and was probably much more widely distributed historically (although some new nesting records suggest that it is rebounding somewhat). On the order of 10 to 100, but probably only 10 to 20, pairs are estimated to be breeding annually in Saskatchewan, and the species is considered to be a critically imperiled breeder in the province (Nature Conservancy). The Red-headed Woodpecker is widely but locally distributed in southern Manitoba, and it is an uncommon but regular breeder in the province, with an estimated breeding population of 1,000 to 10,000 pairs. The species is ranked S5B (a demonstrably widespread, abundant and secure breeder) in the province by the Nature Conservancy. The species apparently began declining in Manitoba within the 1980s, and the decline is presumed to be continuing. Across Ontario, the species is a widespread, but rare (to locally uncommon in the extreme south) summer resident north to Kenora, Wawa and Sudbury, and the Nature Conservancy considers it to be rare or uncommon to apparently secure (S3S4) in the province. Although the species still occupies much of its original range in Ontario, it has declined markedly in the province over the past several decades, and it is still declining today. BBS data indicate that the Red-headed Woodpecker declined significantly in the province between 1966 and 1994 (at an average rate of 5.9% per year), and between 1980 and 1994 (at an average rate of 11.3% per year). Based on Atlas data, 2,000 to 10,000 pairs were roughly estimated to be breeding annually in the province between 1981 and 1985, but the current (1994)

Quebec, the Red-headed Woodpecker is a very rare and infrequent breeder, with a very localized distribution. The species has probably never been abundant in Quebec, but it was probably more abundant at the beginning of this century than it is now. It no longer nests in some areas which were used regularly, and it is believed that the species has undergone a slow decline between 1990 and 1994. Between 1980 and 1988, it bred in approximately 12 sites in southwestern Quebec, but only three sites have been used since 1990, and only one of them has been used in each of the years. The Red-headed Woodpecker was placed on Robert's (1989) list of Vulnerable species in Quebec, and it has been recommended that the species be legally designated as Vulnerable or Threatened in the province. The Nature Conservancy considers the species to be imperiled (S2) in Quebec.

Throughout its range in North America, the Red-headed Woodpecker breeds in thinly treed deciduous forests, woodland and field edges, areas with dead trees, urban parks, farmyards, along rivers and roads where there are a few scattered large trees, and in marshy areas. In general, habitat initially increased with the arrival of European settlers, but then declined as a result of forest destruction, the removal of dead trees for firewood and aesthetic reasons, and intensive agricultural practices. Loss of nesting habitat is considered to be one of the primary factors in the species' decline this century throughout its range in the United States and Canada.

The primary factors limiting Red-headed Woodpecker populations in Canada are the arrival of the European Starling and the resulting competition for nest sites, habitat loss due to firewood cutting, clear-cutting, cutting down dead trees and branches, and intensive agricultural practices, and increased mortality as a result of collisions with cars (increased road traffic). Hunting during the 19th century, and pesticide use this century, have also contributed to the decline. In addition, the species is very noisy and vocal in the breeding season, is very aggressive, and is easily disturbed by human activities.

Because the Red-headed Woodpecker has declined significantly throughout its range in North America this century (particularly in the last few decades), together with the fact that it has declined in all Canadian provinces in which it breeds (including Ontario, where it declined significantly from 1966 to 1994 and from 1980 to 1994), and the relatively small population size in Canada and its susceptibility to several ongoing problems such as habitat loss due to forest destruction, removal of dead trees and branches, and intensive agricultural practices, starling competition, and increased road traffic, it is recommended that the Red-headed Woodpecker be designated as "Vulnerable" in Canada.

DISTRIBUTION

Americas

Breeding

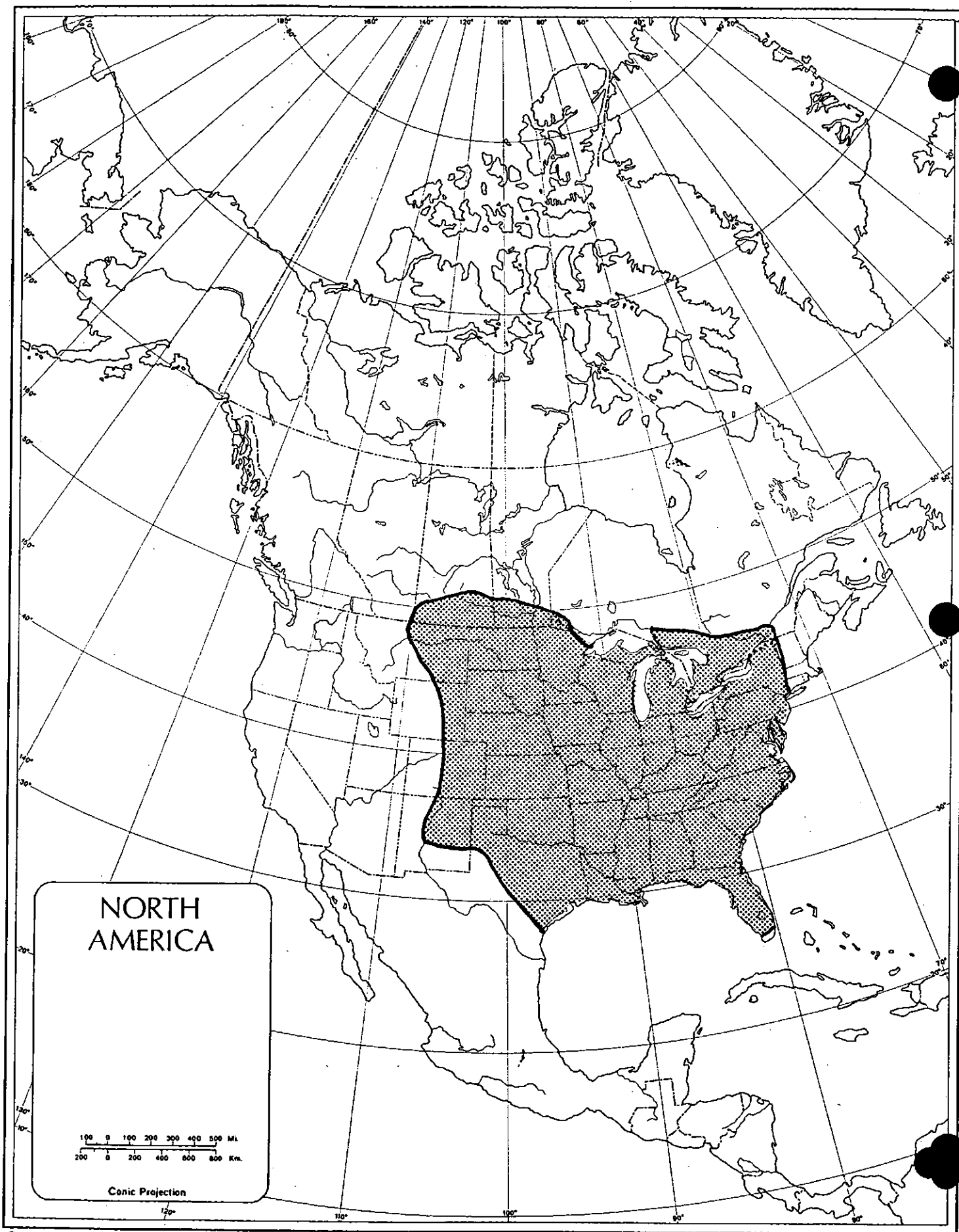
The Red-headed Woodpecker (*Melanerpes erythrocephalus*) is confined to North America in both the breeding and winter seasons (Short 1982; A.O.U. 1983; see Figure 1). There are two subspecies: *M. e. caurinus* Brodkorb, which occupies the western part of the breeding range east to western Ontario, and which is slightly larger and has more pronounced yellow ventral colouring; and *M. e. erythrocephalus* (Linnaeus), which breeds from southern Ontario eastward (Short 1982; Godfrey 1986). However, Short (1982) believed that the physical differences mentioned above are insufficient to warrant the recognition of separate subspecies, and James (1991) believes that all breeding birds in Ontario are *M. e. erythrocephalus*.

According to the A.O.U. (1983), the Red-headed Woodpecker "breeds from southern Saskatchewan, southern Manitoba, western and southern Ontario, southwestern Quebec (rarely), southern New Hampshire and southern New Brunswick (at least formerly) south to central Texas, the Gulf coast and Florida (except the southernmost portion), extending west to central Montana, eastern Wyoming, eastern Colorado and central New Mexico, rarely to northeastern Utah. Occurs in summer (and probably breeds) in southeastern Alberta." However, there is only one possible breeding record from Idaho (on July 29, 1980 the species was "apparently nesting" near Cathedral Pines Camp, 12 miles south of Ketchum), and none from Montana (T. Rogers pers. comm. 1995) or Alberta (Salt and Wilk 1958; Salt and Salt 1976; Semenchuk 1992).

Wintering

The winter distribution of the Red-headed Woodpecker is largely determined by food availability, and not the severity of the weather. When the winter food supply is abundant in an area, the species generally remains, but if food supplies are scarce, it will migrate. Consequently, the winter distribution of this species varies considerably from year to year. Generally, the Red-headed Woodpecker winters regularly through the southern two-thirds of the breeding range, and rarely or casually north to the limits of the breeding range (A.O.U. 1983). In addition, it is casual or accidental in southern British Columbia, southern Alberta, central Saskatchewan, Idaho, southeastern California, Arizona and the Florida Keys (Dry Tortugas) (A.O.U. 1983). Short (1982) stated that the northwestern population (Colorado to Alberta, and east to Minnesota and Nebraska) is highly migratory.

Root's (1988) analysis of Christmas Bird Count data found that the Red-headed Woodpecker is most common in winter in parts of the riparian forests along the Mississippi, Missouri, and Arkansas rivers, and that there is an extension of this population into the area south of Lake Michigan. The analysis also found that the areas of highest density where the species is common in winter may be partially determined by dense populations of Red-bellied Woodpeckers (*Melanerpes carolinus*). The Red-headed Woodpecker is fairly common during winter east to the foothills of the Appalachians, but it avoids the higher elevations of these mountains, and it is also uncommon in the Ozarks. Apparently, it frequents areas receiving at least 32 inches (81 cm) of precipitation annually (Root 1988).



© Outline Map Series, Cartographic Centre, Faculty of Environmental Studies, University of Waterloo.

Figure 1. Distribution of the Red-headed Woodpecker in North America.

Migration

The Red-headed Woodpecker is somewhat migratory in the northernmost part of its range (Forbush 1955; Godfrey 1986), with breeding populations in the west and north generally moving east and/or south for the winter. However, movement to new wintering areas throughout its range is dependent on the available food supply, and not on weather conditions, so if enough food (primarily acorns) is available in an area, the species will remain all year (Short 1982; Smith 1986a and 1986b). Conversely, it will abandon an area with low acorn abundance (Smith 1986b). However, the limited winter records in Ontario (and elsewhere in Canada) indicate that this species is generally migratory there, regardless of food availability.

Canada

In Canada, according to Godfrey (1986), the Red-headed Woodpecker:

Breeds in southern Saskatchewan (very rarely and locally: Cypress Hills; formerly Moose Jaw; recently Lumsden); southern Manitoba (Dauphin, Winnipeg Beach, Sprague); southern Ontario (northward in diminishing numbers to about Kenora, Wawa, Sault Ste. Marie, Pembroke, North Bay, Ottawa); southwestern Quebec (Breckenridge, Hudson-Heights, Lachine, Hatley); and formerly, at least, in southern New Brunswick (Saint John). Range somewhat less extensive than formerly.

Irregularly wanders westward to British Columbia (photo record: Vernon, 11 July 1965); southern Alberta (Waterton Lakes, Foremost, Calgary, Elk Island Park); and eastward uncommonly to Nova Scotia (Ketch Harbour, Windsor and many sight records in recent years). Winters in southern Ontario (rarely) and very rarely southern Manitoba (St. Vital, Balmoral).

The species is also casual in winter in New Brunswick (Squires 1976), and is a rare to very rare, but regular, winter resident in Nova Scotia (Tufts 1986; I. McLaren pers. comm. 1995). It is casual to accidental in southern Alberta and southern British Columbia (A.O.U. 1983).

British Columbia

The Red-headed Woodpecker is only a vagrant in British Columbia, where there is one historical record from Pass creek, near Robson, Columbia river (a pair was seen on June 25, 1890) (Macoun and Macoun 1909), one sight record from the Skookumchuck area of the East Kootenays (R. Cannings pers. comm. 1995), and a photo record from Vernon (Godfrey 1986). Larrison (1981) described the species as a rare summer, fall and winter straggler to southern B.C.

Alberta

The Red-headed Woodpecker is a casual wanderer in Alberta, and is not known to breed in the province (Salt and Wilk 1958; Salt and Salt 1976; Semenchuk 1992). It is primarily observed in the southern portion of the province, west to Calgary (H. Pinel pers. comm. 1995).

Saskatchewan

The Red-headed Woodpecker breeds very locally in southern Saskatchewan (Robert 1989). Breeding was confirmed at Moose Jaw, Cypress Hills, and White Mud River in the late 1800s (Thompson 1891; Macoun and Macoun 1909). More recently, the species has bred at Cypress Hills, and has been seen widely south of Saskatoon, Prince Albert and Nipawin (Salt and Salt 1976). During Saskatchewan's Atlas project (A. Smith pers. comm. 1995), the species was recorded in only 24 squares (3% of the province). Breeding was confirmed in only two (8%) of the 24 squares, while probable breeding was reported in four (17%) of the squares, and possible breeding was recorded in 18 (75%) of the squares (see Figure 2).

Manitoba

The Red-headed Woodpecker is quite widespread, but local, in southern Manitoba, being found essentially in those areas that are considered to be prairie and parkland. It is absent in the boreal forest, and is more common in the eastern than the western part of the province (R. Koes pers. comm. 1995). Salt and Salt (1976) stated that the species nests mainly in the southeastern corner of the province, north to Sprague, Dauphin, Winnipeg Beach and Hillside Beach, while Peter Taylor (pers. comm. 1995) states that it is found throughout the southern fifth of the province, north to the Pinawa-Lac du Bonnet region in the southeast, Hodgson in the Interlake region, and Dauphin in the west. This species tends to be very faithful to preferred areas, and there are many traditional breeding areas in the province, such as certain city parks in Winnipeg (occupied for decades), and woodlots (occupied for 10-20 years at least) (R. Koes pers. comm. 1995). J. Duncan (pers. comm. 1995) estimated that the species' breeding range encompasses approximately 14% of the province.

The Red-headed Woodpecker is also a very rare, occasional to frequent winter resident in Manitoba. In the 1980s and 1990s, winter residents involved single birds or small family groups in one location in particular and at a few other locations infrequently. The species is not known to winter in Manitoba every year, but wintering has been noted much more frequently in the last 10 or more years than in the previous 100 years (R. Koes pers. comm. 1995).

Ontario

The Red-headed Woodpecker nests throughout southern Ontario, but is less common in the Canadian Shield (Peck and James 1983) (see Figure 3). James (1991) described the species as a rare (to locally uncommon in the extreme south) summer resident across Ontario north to Kenora, Wawa, and Sudbury, a rare winter resident in the south, and a rare to common migrant. On Ontario Christmas Bird Counts from 1968-1977, the species was uncommon along the shore of Lake Erie north to Kettle Point and Niagara, and rare farther north to Kingston and Barrie (Speirs 1985). Although the Red-headed Woodpecker has declined in abundance in Ontario over the past several decades, it still occupies much of its original range (Peck and James 1983).

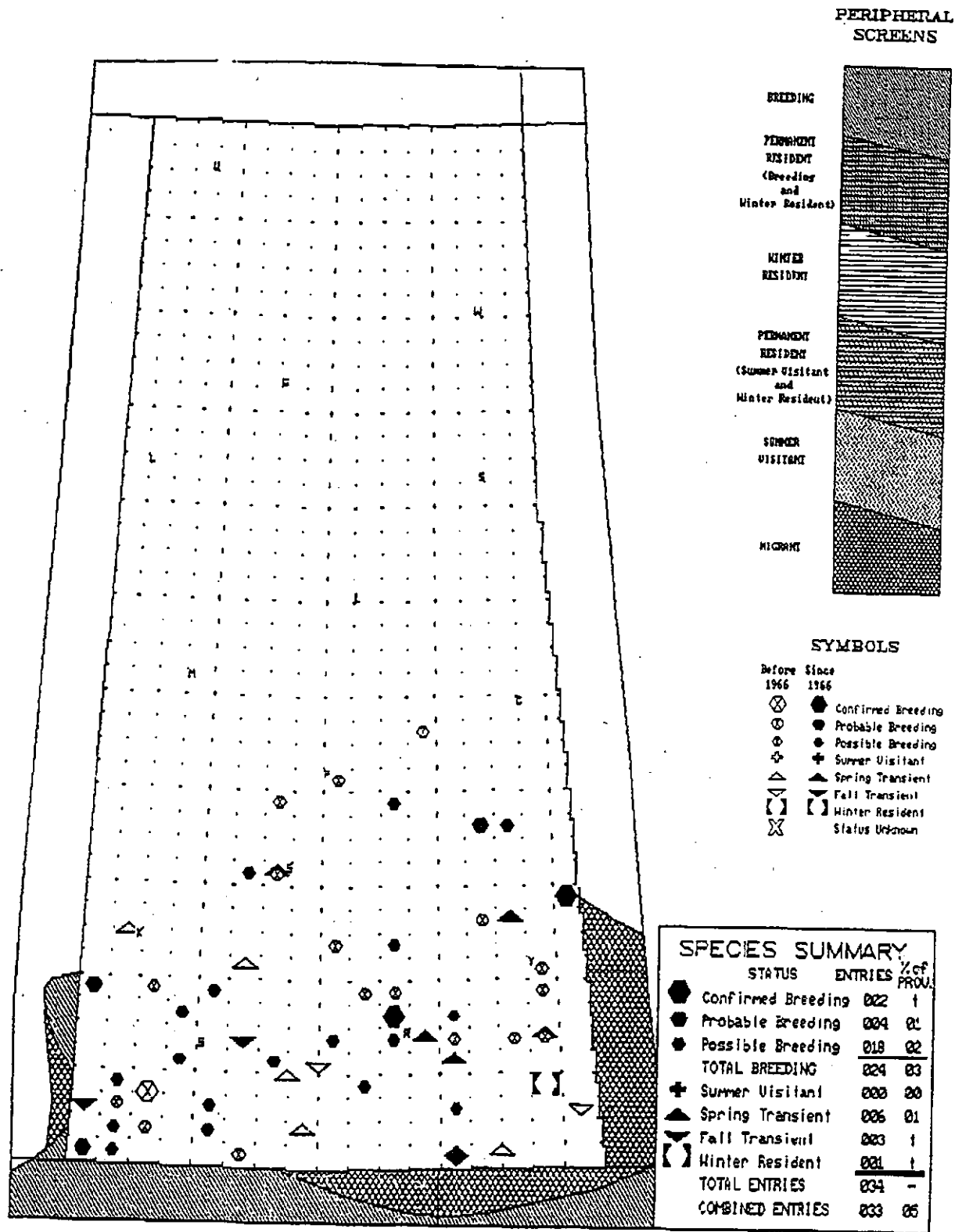


Figure 2. Distribution of the Red-headed Woodpecker in Saskatchewan (from the Saskatchewan Atlas project, not yet published).

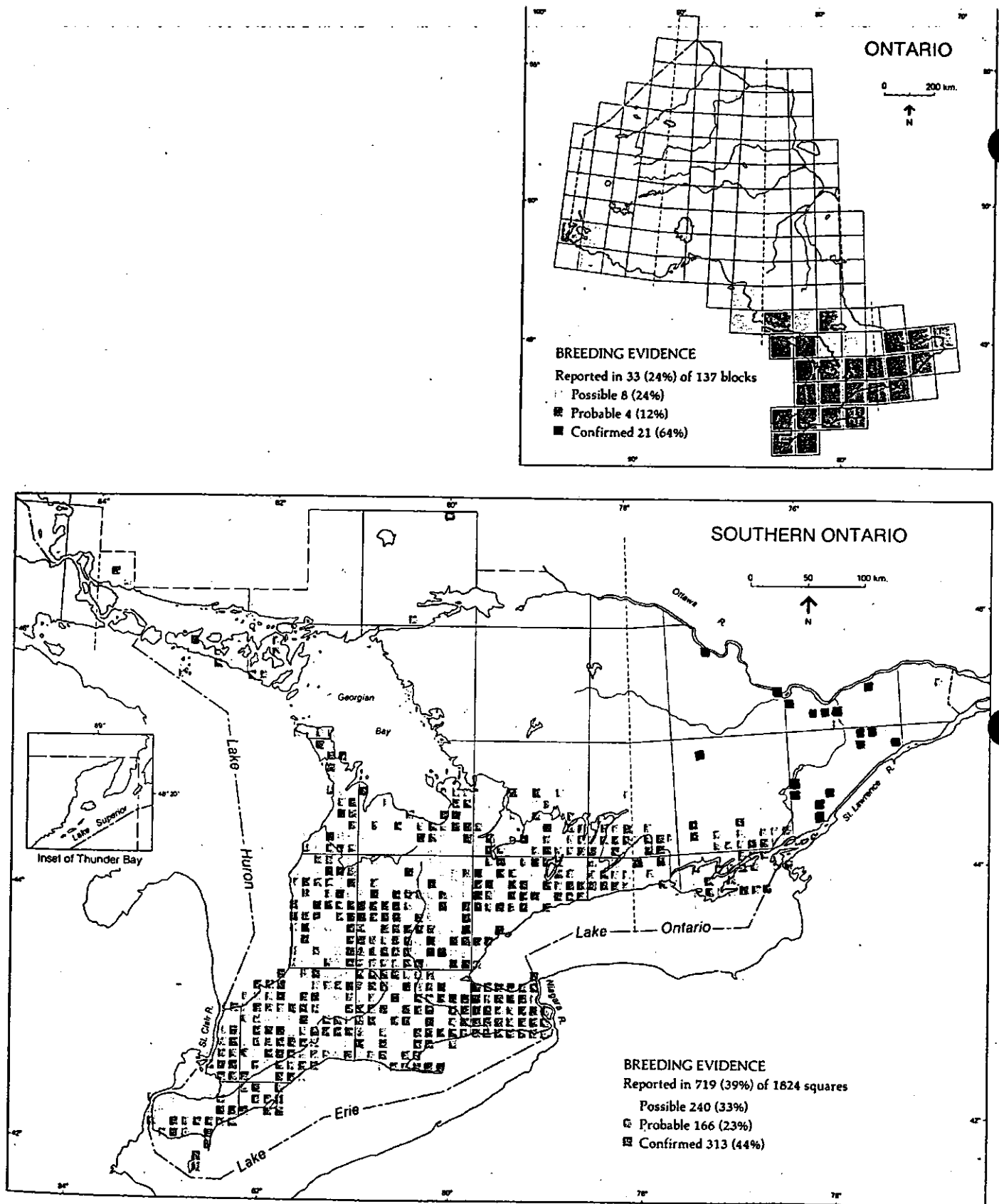


Figure 3. Breeding distribution of the Red-headed Woodpecker in Ontario (from Cadman *et al.* 1987).

Table 1. Summary of Red-headed Woodpecker records from the Atlas of the Breeding Birds of Ontario by Site Region.

<u>Region</u>	<u># of Squares</u>	<u>% of Squares</u>	<u>% frequency by Region</u>
1. Hudson Bay	0	0.0	0.0
2. Northern Boreal Forest	0	0.0	0.0
3. Boreal Forest	0	0.0	0.0
4. Southern Boreal Forest	3	0.5	0.4
5. Northern Great Lakes Forest	74	8.3	10.2
6. Southern Great Lakes Forest	383	60.0	52.6
7. Carolinian Forest	268	81.5	36.8

* Number of squares for which data were received during the breeding bird atlas:

Region 1 - 164 squares	Region 5 - 887 squares
Region 2 - 368 squares	Region 6 - 638 squares
Region 3 - 713 squares	Region 7 - 329 squares
Region 4 - 558 squares	

According to Breeding Bird Atlas data (1981-1985), the species' distribution in southern Ontario is almost continuous, and it probably bred in most areas of the south where it was found during the Atlas (Woodliffe 1987). However, the species was absent from heavy urban development areas such as around Toronto and Hamilton, and in the most intensively agricultural area in Essex Co., most likely because of habitat destruction. In addition, the frequency of occurrence became more scattered towards the edge of the Canadian Shield, as the amount of agricultural land decreased. There was a concentration of "confirmed" breeding records on the Niagara Peninsula, indicating that it is a preferred breeding area for the species. The Red-headed Woodpecker was not often recorded in eastern Ontario away from the Ottawa area, and it was not found to be breeding in the area north of North Bay or from Rainy Lake to Thunder Bay. Some of the more northerly Atlas records may have been of extralimital wanderers, even though they were in suitable breeding habitat (Woodliffe 1987).

According to Atlas data, the Red-headed Woodpecker is most common in the Southern Great Lakes Forest (53% of all records) and the Carolinian Forest (37% of all records) Regions, but it was also found in the Northern Great Lakes Forest (10% of all records) and the Southern Boreal Forest (<1% of all records) Regions (Cadman *et al.* 1987; see Table 1). The species was recorded in 82% of all Carolinian Forest Region squares, and 60% of all Southern Great Lakes Forest Region squares (Cadman *et al.* 1987; see Table 1), indicating that it is widespread in southern Ontario south of the Canadian Shield.

Quebec

In Quebec, the Red-headed Woodpecker nests very locally in the southern areas of the St. Lawrence lowlands and the southern Appalachians (Robert 1989; see Figures 4a and 4b). In addition, the species has been seen in the Madeleine Islands, Gaspé Peninsula, North Shore, Laurentians, Lake Saint-Jean, and, a few times, in the St. Lawrence lowlands to the east of Lake Saint-Pierre (David 1980 in Robert 1989). The species breeds regularly in the St. Lawrence corridor (Robert 1989).

The Maritime Provinces

The Red-headed Woodpecker has never bred regularly in New Brunswick or any of the other Maritime provinces (Erskine 1992). The only confirmed breeding record from all of the Maritimes occurred near St. John, New Brunswick in 1881 (Chamberlain 1882c in Squires 1976). All Red-headed Woodpecker reports in New Brunswick are from the central and southern portions of the province (Squires 1976; Erskine 1992). In addition, the species is casual in winter in New Brunswick (Squires 1976).

The Red-headed Woodpecker is a rare to very rare, but regular, spring and fall migrant and winter resident in Nova Scotia (I. McLaren pers. comm. 1995). During migration, the species can be found anywhere, including spruce trees on islands. In winter, it is generally found at feeders in urban or rural yards, and orchards (I. McLaren pers. comm. 1995).

PROTECTION

The Red-headed Woodpecker and its nests and eggs are protected in Canada and the United States under the joint Migratory Birds Convention of 1916. The species is on Robert's (1989) list of Vulnerable species in Quebec, and it has been recommended that the Red-headed Woodpecker be legally designated as Vulnerable or Threatened in the province, in accordance with the Quebec law: *Loi sur les espèces menacées ou vulnérables* (F. Shaffer pers. comm. 1995). However, it may take one or more years for the species to be officially designated (F. Shaffer pers. comm. 1995). The species has not been officially designated in any of the other provinces in which it breeds.

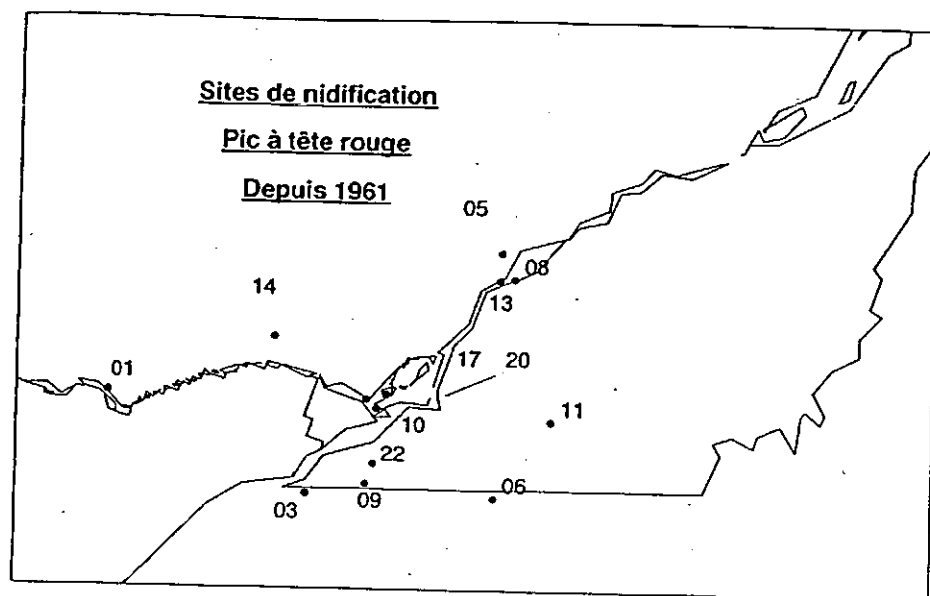


Figure 4a. Breeding distribution of the Red-headed Woodpecker in Quebec (1961-1994) (from base de données sur les oiseaux menacés du Québec, 11 janvier 1995; Service canadien de la faune et Association québécois des groupes d'ornithologues).

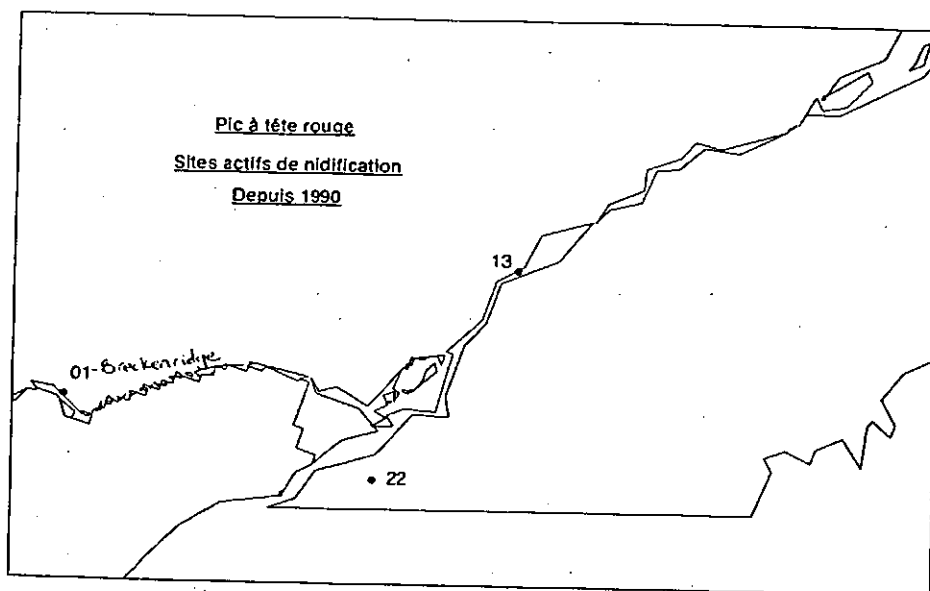


Figure 4b. Breeding distribution of the Red-headed Woodpecker in Quebec (1990-1994) (from base de données sur les oiseaux menacés du Québec, 11 janvier 1995; Service canadien de la faune et Association québécois des groupes d'ornithologues).

POPULATION SIZE AND TREND

Global

Globally, the Nature Conservancy considers the Red-headed Woodpecker to be demonstrably widespread, abundant and secure, although it may be quite rare in parts of its range, especially at the periphery (G5). However, populations have declined in many parts of North America this century (Tate 1986 in McCracken 1987), probably due mainly to loss of nesting habitat as a result of firewood cutting and forest clearing for agriculture and residential development, and competition for nest sites with the European Starling (Natural Heritage Information Centre database 1994; McCracken 1987).

Numbers seem to have fluctuated widely since the arrival of Europeans in North America (Robert 1989). Initially, the species apparently benefitted from the intensive logging that occurred (Cadman *et al.* 1987), but subsequently, the numbers decreased considerably, especially during the course of the 20th century (Bull 1974; Ouellet 1974 in Robert 1989; Terres 1980; Robbins *et al.* 1986; Cadman *et al.* 1987; Andrie and Carroll 1988). The species was extremely common in North America in the late 1800s, but by the early 1900s it had become relatively scarce (K. Smith pers. comm. 1995). The spread of Dutch Elm Disease and Chestnut Blight resulted in a recovery period, and the species was very common again in the 1950s, 1960s and 1970s. Since then, however, the Red-headed Woodpecker population has experienced a steep decline in numbers throughout its range (particularly in the last 15 years), except in certain areas such as Delaware and Maryland (K. Smith pers. comm. 1995). K. Smith (pers. comm. 1995) believes that these more recent declines are a result of "urban cleansing" (i.e. removal of dead trees and branches by landowners), and perhaps starling competition.

The Breeding Bird Survey (BBS) is one of the best ways to determine trends in Red-headed Woodpecker numbers, because the species tends to frequent relatively open areas adjacent to roads (R. Ridout pers. comm. 1995). BBS data indicate that the Red-headed Woodpecker has declined significantly throughout its range in North America in recent decades (B. Peterjohn pers. comm. 1995). Between 1966 and 1994, the species underwent a statistically significant decline in numbers in North America, at an average rate of 1.9% per year ($p < 0.01$, $n = 1064$, $R.A. = 1.98$) (B. Peterjohn pers. comm. 1995), while between 1980 and 1994 the decline was much greater (an average rate of 4.4% per year; $p < 0.01$, $n = 908$). In Canada, BBS data from 1967 to 1994 show a decline in numbers, at an average rate of 2.2% per year ($n = 31$, $R.A. = 0.19$), while between 1980 and 1994 the population declined at an average rate of 4.2% per year ($n = 26$). Neither Canadian trend was significant, however, and both are based on less than 50 routes, which may make them suspect; therefore, these trends should be viewed with considerable caution (B. Peterjohn pers. comm. 1995).

The Red-headed Woodpecker was placed on American Birds' Blue List from 1972 through 1981, indicating that knowledgeable birdwatchers thought it to be declining in a significant portion of its North American range. In 1982, the species was taken off the Blue List and placed on the "Special Concerns" list, where it remained in 1986 (Tate and Tate 1982; Tate 1986). In 1976, only four regions supported Blue Listing (Hudson-Delaware, Florida, Middlewestern Prairie and the southwest) (Arbib 1975). A total of 10 regions supported retention on the List in 1977, with only the Middlewestern Prairie, Ontario, and Western Great Lakes Regions unanimously opposed (Arbib 1976). In 1978, eight regions supported retention (with three split), with most (and strong) dissent

coming from the Western Great Lakes and Middlewestern Prairie Regions (Arbib 1977). Twelve out of 15 reporting regions supported retention in 1979 (the Western Great Lakes and Middlewestern Prairie Regions were still strongly opposed, and the Middle Atlantic Coast was divided) (Arbib 1978), while 13 supported retention in 1980 (Arbib 1979). In 1980, the Red-headed Woodpecker was ranked 14th on the Top 20 widespread-range declining species (Arbib 1979). By 1981, there were nearly equal requests for retention and deletion (Tate 1981), and in 1982, the problems were believed to be very local within a region, and the species was taken off the Blue List and added to the "Special Concerns" List, which contains species that appear to be recovering from a past decline (Tate and Tate 1982). In 1986, the Red-headed Woodpecker was widely reported as down or greatly down, mostly due to habitat loss resulting from firewood cutting and clearcutting for wood and agriculture, and the species remained on the "Special Concerns" List (Tate and Tate 1982; Tate 1986). The Blue List was published from 1972 until 1986 inclusive, with the exceptions of 1973, 1974 and 1975.

United States

The Red-headed Woodpecker has been assigned a Nature Conservancy Heritage Rank of N5B, N5N in the United States, meaning that the species is demonstrably widespread, abundant and secure in the nation and essentially ineradicable under present conditions. However, BBS data indicate that the Red-headed Woodpecker has declined throughout much of its range in the United States (Tables 2 and 3). The species declined in 20 of the 29 states listed in Tables 2 and 3 between 1966 and 1994, and in 24 of the 29 states between 1980 and 1994. The species was not recorded on enough BBS routes in the New England states to determine population trends there (B. Peterjohn pers. comm. 1995). Overall, BBS data indicate that the Red-headed Woodpecker underwent a significant decline in the United States between 1966 and 1994 and between 1980 and 1994 (Tables 2 and 3).

Despite the obvious declines mentioned above, State Nature Conservancy Heritage Ranks (Table 4) indicate that in general, the Red-headed Woodpecker is widespread and quite common throughout most of its range in the United States. The species is considered to be demonstrably (S5) or apparently (S4) secure in 24 of the 44 states listed in Table 4 (Alabama, Arkansas, Georgia, Illinois, Indiana, Iowa, Kansas-breeding, Kentucky, Louisiana, Maryland, Michigan, Mississippi, Montana-breeding, Nebraska, North Carolina, New York, Oklahoma, Pennsylvania, South Dakota-breeding, Tennessee, Texas, Virginia, Wisconsin-breeding, and Wyoming-breeding). However, between 1980 and 1994, BBS data showed a significant decline in numbers in 14 of these 24 states, and a non-significant decline in three others; in only five of the states was an increase in numbers noted (see above). In addition, the species is ranked as rare or uncommon to apparently secure in Colorado (breeding), and as rare or uncommon in Massachusetts, New Jersey and West Virginia. The Red-headed Woodpecker considered to be either imperiled (S2) or critically imperiled (S1) in six states, and most of these are either on the fringe of, or outside of, the species' breeding range: Connecticut, Delaware, New Hampshire, New Mexico, Rhode Island-nonbreeding, and Utah (*M. e. caurinus*). The species is of historical occurrence as a breeder in Rhode Island, accidental in Idaho and Maine, and is unranked in Florida, Minnesota, Missouri, North Dakota and Ohio. In addition, the Red-headed Woodpecker is proposed for Species of Special Concern status in Vermont (Fichtel 1985).

Table 2. Available Breeding Bird Survey data (1966-1994) for the United States (B. Peterjohn pers. comm. 1995).

State	Trend +	Significance (P)	Sample Size (N) ++	Relative Abundance +++
United States	-1.9	***	1033	2.12
Alabama	-1.9	**	53	1.34
Arkansas	-3.2	***	28	1.94
Florida	-6.3	***	48	1.19
Georgia	2.4		50	1.49
Illinois	-1.4	*	75	5.25
Indiana	-2.8	***	42	3.24
Iowa	-3.8	***	34	9.04
Kansas	1.8	**	37	4.88
Kentucky	3.7	**	33	0.91
Louisiana	-6.4	**	28	1.36
Maryland	8.8	***	24	0.20
Michigan	-9.6	***	47	0.70
Minnesota	-3.1	***	42	2.42
Mississippi	5.2		29	1.72
Missouri	-0.3		44	6.04
Nebraska	-0.2		39	5.60
New York	-10.5	***	21	0.09
N. Carolina	-2.2		24	0.84
N. Dakota	-0.9		14	0.31
Ohio	-5.3	***	49	1.10
Oklahoma	-5.0	***	46	1.80
Pennsylvania	-10.8	*	18	0.06
S. Carolina	0.7		18	1.41
S. Dakota	-1.3	**	26	1.06
Tennessee	6.5	**	27	0.47
Texas	-4.1	*	34	0.89
Virginia	-7.3		16	0.14
Wisconsin	-4.2	***	62	2.76

+ trend is expressed as average percent annual change

++ N is the number of routes used in the analysis

+++ Average Relative Abundance represents the average number of individuals recorded on routes used in the analysis period.

* = $0.05 < P < 0.10$

** = $0.01 < P < 0.05$

*** = $P < 0.01$

Table 3. Available Breeding Bird Survey data (1980-1994) for the United States (B. Peterjohn pers. comm. 1995).

<u>State</u>	<u>Trend +</u>	<u>Significance (P)</u>	<u>Sample Size (N) ++</u>
United States	-4.5	***	882
Alabama	-4.8	***	50
Arkansas	-9.3	***	25
Florida	-3.3		40
Georgia	2.7		45
Illinois	-4.2	***	75
Indiana	-1.1		42
Iowa	-7.9	***	33
Kansas	-1.5		37
Kentucky	0.2		29
Louisiana	-1.8		24
Maryland	9.2		19
Michigan	-9.2	***	36
Minnesota	-8.7	***	39
Mississippi	2.1		25
Missouri	-2.4		42
Nebraska	-4.0	***	36
New York	-11.9	***	8
N. Carolina	-3.0		19
N. Dakota	-7.0		14
Ohio	-5.3		37
Oklahoma	-3.8	**	40
Pennsylvania	-12.1	***	6
S. Carolina	-0.9		16
S. Dakota	-0.6		14
Tennessee	-2.3		26
Texas	-4.2	*	16
Virginia	5.0	*	14
Wisconsin	-7.8	***	56

+ trend is expressed as average percent annual change

++ N is the number of routes used in the analysis

+++ Average Relative Abundance represents the average number of individuals recorded on routes used in the analysis period.

* = $0.05 < P < 0.10$

** = $0.01 < P < 0.05$

*** = $P < 0.01$

Declines have occurred in all states bordering the Red-headed Woodpecker's Canadian breeding range (Michigan, Minnesota, New York, North Dakota, Ohio, Pennsylvania, and the New England states) (BBS data from 1966-1994, and 1980-1994; Bull 1974; Stewart 1975; Fichtel 1985; Spahn 1988; Peterjohn 1989; Peterjohn and Rice 1991; Pitcher 1991; Schutsky 1992; D. Cutler, D. Lambeth, B. Nikula and W.R. Petersen pers. comm. 1995), with the exception of Montana, where the species is ranked as S5 by the Nature Conservancy despite the fact that breeding has never been recorded in the state (T. Rogers pers. comm. 1995). This suggests that the ranking for Montana is erroneous. Currently, the Red-headed Woodpecker is generally considered to be a rare but regular breeder in North Dakota (D. Lambeth pers. comm. 1995); a rare but frequent breeder in New England (B. Nikula pers. comm. 1995); a regular summer resident in Minnesota (Janssen 1987); a moderately common summer resident in Michigan's Lower Peninsula, and scarce in the Upper Peninsula (Pitcher 1991); a fairly common to locally common summer resident in western Ohio (Peterjohn 1989); and a locally uncommon to fairly common breeder in New York (Spahn 1988).

Canada

A national Nature Conservancy rank has not been designated for the Red-headed Woodpecker. Godfrey (1986) stated that the species is nowhere a common bird in Canada, with the exception of perhaps extreme southern Ontario, but currently it is believed to be only locally uncommon (usually found locally, but numbers seen are likely to be small, i.e. six to 25 a day) in extreme southern Ontario, and rare (usually seen singly and difficult to find on any particular outing, unless a specific location is known) elsewhere in the southern portion of the province (James 1991). BBS data indicate that the Red-headed Woodpecker declined in numbers in Canada between 1967 and 1994 (at an average rate of 2.2% per year, $n=31$, $R.A.=0.19$), while between 1980 and 1994 the population declined at an average rate of 4.2% per year ($n=26$) (B. Peterjohn pers. comm. 1995). Although the percent annual change according to the BBS data analysis for these two data sets was negative, the trends were not significant; in addition, these trends are based on less than 50 routes, meaning that they may be suspect and should be viewed with considerable caution (B. Peterjohn pers. comm. 1995). The species also declined in the Mixedwood Plain Ecozone of Canada (southern Ontario and Quebec, along Lakes Erie and Ontario and up the St. Lawrence River) between 1966 and 1994 (at an average rate of 3.1% per year, $n=23$) and between 1980 and 1994 (at an average rate of 2.6% per year, $n=22$) (C. Downes pers. comm. 1995).

British Columbia

The Red-headed Woodpecker is accidental in British Columbia (Campbell *et al.* 1990; Nature Conservancy Heritage Rank). A pair was seen at Pass creek, near Robson, Columbia River, on June 25, 1890 (Macoun and Macoun 1909), and from July 11 to 13, 1965 an adult was observed in roadside deciduous woods 13 km east of Vernon (Campbell *et al.* 1990). There is also one sight record from the Skookumchuck area of the East Kootenays (R. Cannings pers. comm. 1995). Larrison (1981) stated that the species is a rare summer, fall and winter straggler to southern B.C.

Table 4. Available State Nature Conservancy Heritage Ranks for the United States.

<u>State</u>	<u>Rank</u>	<u>State</u>	<u>Rank</u>
Alabama	S5 (1991)	Mississippi	S4S5 (1987)
Arkansas	S4 (1986)	Montana *	S5B, SZN (1993)
Arizona	SN	North Carolina *	S4B, S4N (1990)
Colorado *	S3S4B, SZN (1992)	North Dakota	S?
Connecticut	S1 (1993)	Nebraska	S5
Delaware	S2 (1987)	New Hampshire	S1 (1993)
Florida	S?	New Jersey	S3 (1984)
Georgia	S4	New Mexico *	S2B, S2N (1994)
Idaho	SA (1986)	New York	S4 (1983)
Iowa	S5	Ohio	S? (1994)
Illinois	S5	Oklahoma *	S4B, S5M (1992)
Indiana	S4	Pennsylvania	S4 (1982)
Kansas *	S5B, SZN (1991)	Rhode Island *	SHB, S1N (1993)
Kentucky	S4S5 (1990)	South Carolina	SU
Louisiana	S4 (1988)	South Dakota *	S5B, SZN (1991)
Massachusetts	S3 (1988)	Tennessee	S4 (1987)
Maryland	S5 (1985)	Texas	S5 (1993)
Maine	SA (1983)	Utah	S2 (<i>M. e. caurinus</i>) (1990)
Michigan	S5 (1992)	Virginia	S4 (1989)
Minnesota	S?	Vermont *	S1S2B, SZN (1993)
Missouri	S?	Wisconsin	S4B, SZN (1991)
		West Virginia *	S3B, S3N (1994)

* B refers to breeding status; N refers to non-breeding status; M refers to migration status

- S1 = Critically imperiled in state because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extirpation from the state.
- S2 = Imperiled in state because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extirpation from the state.
- S3 = Rare or uncommon in state (on the order of 21 to 100 occurrences).
- S4 = Widespread, abundant, and apparently secure in state, with many occurrences, but it is of long-term concern.
- S5 = Demonstrably widespread, abundant, and secure in state and essentially ineradicable under present conditions.
- SA = Accidental or casual in state, including species recorded once or twice or only at very great intervals, hundreds or even thousands of miles outside their usual range.
- SH = Occurred historically in the state (with the expectation that it may be rediscovered), perhaps having not been verified in the past 20 years, and suspected to be still extant.
- SN = Regularly occurring, usually migratory and typically nonbreeding species for which no significant or effective habitat conservation measures can be taken in the state.
- SU = Unrankable (possibly in peril in state but status uncertain; need more information).
- SZ = Not of practical conservation concern in state because there are no definable occurrences, although the taxon is native and appears regularly in the state; typically applies to migrants.
- S? = Unranked.

Alberta

The Red-headed Woodpecker is only a casual wanderer into Alberta, and it is not known to breed in the province (Salt and Wilk 1958; Salt and Salt 1976; Semenchuk 1992; H. Pinel pers. comm. 1995). However, it does appear irregularly, with most records consisting of single birds in mid-June, and several coming from the foothills of the Rocky Mountains (Salt and Salt 1976; Sadler and Myers 1976). It has been recorded at Foremost (June 11, 1974); Medicine Hat (May 24, 1894 and June 6, 1971); Brooks; Waterton Lakes Park (June 2 and July 17, 1922; May 14, 1966); Sheep River; Water Valley; Calgary; Rosebud; Comrey; Viking; Elk Island National Park; 20 miles west of Turner Valley (June 13, 1961); Bottrel (July 23, 1965); Islay (June 2, 1967); 20 miles north of Ralston (June 16, 1968); near Seebe (June 27, 1969); near Lost River (June 27, 1969); Beiseker (June 21, 1970); Willow Valley, south of Elkwater (June 1 and 3, 1971); Red Deer (May 30, 1976); Kananaskis Provincial Park (June 24, 1976); Wardlow (June 11, 1978); and Beynon (June 16, 1978) (Rand 1948; Salt and Salt 1976; Sadler and Myers 1976; Pinel *et al.* 1991; O. Droppo and J. Riddell pers. comm. 1995).

In addition to the above, there have been some reports from the 1980s, mostly from the southern portion of the province, west to Calgary (H. Pinel pers. comm. 1995). A single Red-headed Woodpecker was recorded at the Inglewood Bird Sanctuary in Calgary on July 19, 1986, and July 10 and 11, 1990; one was recorded two miles east of Tofield on May 17, 1987; and one was recorded 4 km east of Rosemary on June 20, 1987 (O. Droppo and J. Riddell pers. comm. 1995). The species is frequently seen in the Cypress Hills area, but even though breeding has been documented on the Saskatchewan side of the hills, the species is not known to breed on the Alberta side (Salt and Wilk 1958; Salt and Salt 1976). The species was not reported to Alberta's Breeding Bird Atlas project (1987-1991) (Semenchuk 1992).

Saskatchewan

Available information indicates that the Red-headed Woodpecker is a rare breeder in Saskatchewan. Historically, Taverner (1919) stated that the species was not numerous enough in the western or Prairie sections of Canada to be of much economic importance. Breeding was first reported in Saskatchewan at Moose Jaw in the 1890s (Salt and Salt 1976), on the east end of the Cypress Hills in June 1894 (Macoun and Macoun 1909), and at "Stone Pile" on the White Mud River in June 1895 (Macoun and Macoun 1909). Other records from the late 1800s include: one seen in timber at Skull creek on June 9, 1905; seen at Old Wives creek in May 1895; and observed at Wood Mountain Post in June 1895; (Macoun and Macoun 1909). Historical records from the Saskatchewan River (Carlton to Cumberland) area include one seen nine miles south of Prince Albert, north of Red Deer Hill, on May 16, 1933; and one seen eight miles south of Prince Albert on June 7, 1936, and another one at Red Deer Hill about three days later (Houston and Street 1959). In addition, Houston and Street (1959) described the species as a rare summer straggler at Nipawin; one was seen in the late 1920s on a farm at Torch River, and the species was noted in the same area during the summers of 1956 and 1957.

The Red-headed Woodpecker is a sporadic summer resident in the Qu'Appelle Valley area of Saskatchewan. Up until 1979, only seven definite records were known from the area, and they all probably represented wandering (likely non-breeding) birds (Callin 1980). Records include: single birds at Indian Head on May 24, 1903, September 24, 1904 and May 27, 1908; an adult that remained for most of the day on June 24, 1927 in a grove on a farm near Percival; observed casually "a few times" in the Percival district from the early 1880s until about 1920; one seen 6 km south of Indian Head on June 3, 1962; one bird seen near Oakshela on June 1, 1940 (uncertain observation); one seen near Whitewood on May 28, 1969; and one seen at Katepwa bridge on June 3, 1969, and then 1.5 km east of there in a farmyard on June 8, 1969 (Callin 1980).

The Red-headed Woodpecker is also an irregular summer visitant in the Regina area. The first record from the area was that of an adult male collected on May 24, 1936, but the species was not reported from there again until the summer of 1958 when one was observed. Between 1960 and 1978, the species has been recorded on one or more occasions in each of 10 different years. Most of the sightings have been from May to June, but there are three fall records from the area (October 13-18, 1968, October 29, 1973, and September 5, 1976) (Belcher 1980). On July 5, 1980 a pair was observed at a nest in the Lumsden Cemetery, just north of Regina, in a dead cottonwood tree, and on July 12, both adults were seen bringing food to the nest (Shadick 1980).

During Saskatchewan's Atlas project, breeding evidence was reported in only 24 squares (3% of the total area of the province). Breeding was confirmed in only two (8%) of the 24 squares, while probable breeding was reported in four squares (17%), and possible breeding was recorded in 18 squares (75%) (A. Smith pers. comm. 1995). On the order of 10 to 100 pairs (but probably only 10 to 20 pairs at the most) are estimated to breed annually in the province (A. Smith pers. comm. 1995). The species was probably much more widely distributed historically, before the invasion of the European Starling into the province, but some new recent nesting records suggest that it is rebounding (A. Smith pers. comm. 1995).

In 1991, Red-headed Woodpeckers were observed at nest holes in Caragana and Pelly, and just inside the province near Empress, Alberta. These were the first indications of nesting in Saskatchewan since 1980, and the Pelly nest appears to be the province's first known success (Koes and Taylor 1991). Other recent records from American Birds include: pairs observed near Govenlok on June 30, 1990, and for the fourth consecutive year near Estuary in 1990 (Koes and Taylor 1990); one individual at Calgary on June 20, 1991 (Koes and Taylor 1991); three reports from May 22 to 28, 1992 which "attest to its toehold in the province" (Koes and Taylor 1992a); and records from Saskatchewan Landing Provincial Park on June 1, 1992, Condie on June 7, 1992, and near Hodgeville on June 14, 1992 (Koes and Taylor 1992b). Currently, the Nature Conservancy considers the Red-headed Woodpecker to be critically imperiled (S1) as a breeder in Saskatchewan, with zero non-breeding sites of practical conservation concern (i.e., it migrates through the nation, but in an irregular or unpredictable fashion; it doesn't stop or stage at any one site on an annual, regular or predictable basis).

Manitoba

Historically, the Red-headed Woodpecker was a rare summer resident in Manitoba (McIlwraith 1894; Thompson 1891; Macoun and Macoun 1909), but it increased in numbers as the prairies became more wooded (Macoun and Macoun 1909; R. Koes pers. comm. 1995). In the late 1800s and early 1900s, the species was considered to be a very rare breeder at Aweme, a rare summer resident at Carberry, a tolerably common summer resident at Winnipeg (one or two pairs seen each season), and common at Pembina (Thompson 1891; Macoun and Macoun 1909). In addition, Thompson (1891) described the Red-headed Woodpecker as a very rare summer visitor in the Portage la Prairie area, but Macoun and Macoun (1909) stated that the species was "rapidly increasing in numbers in the heavier wooded districts of Manitoba, having become quite a regular breeding species about Portage la Prairie along the Assiniboine river east." More recently, Shortt and Waller (1937) described the species as rare at Lake St. Martin (a male was collected on June 1, 1933 and a pair nested in a hole in a birch tree near the settlement in 1934), and Gardner (1981) described the species as an occasional transient and summer resident at Oak Hammock Marsh Wildlife Management Area (adults were occasionally seen on the western periphery of the area during the 1960s and early 1970s).

Within the 1980s, however, the Red-headed Woodpecker population appears to have declined in Manitoba, and the decline is presumed to be continuing (R. Koes and P. Taylor pers. comm. 1995). The species is now absent from some areas with suitable habitat, such as the Winnipeg city park which formerly held two to three pairs but now holds only one pair. This pattern is noted in several other areas (R. Koes pers. comm. 1995). In addition, the species was considered to be an uncommon summer resident from Stony Mountain north to the Komarno area until about the late 1960s, and although the species still nests there locally, it has since decreased, due mainly to lack of nesting sites and competition with starlings and other cavity nesting species for the nest sites that are still available. A small population was established in Pinawa in the 1960s but was extirpated in the 1980s, and elsewhere, numbers have generally declined, by at least 50%, since 1980 (P. Taylor pers. comm. 1995). Although the reasons for these declines are unclear, the die-off and subsequent removal of elm trees in riverbottom forest in certain areas of Manitoba may have depressed numbers in the general Winnipeg area (R. Koes pers. comm. 1995); other possible factors include nest site competition with the European Starling, and the felling of dead trees in Pinawa (P. Taylor pers. comm. 1995).

Despite the declines mentioned above, the Red-headed Woodpecker has been assigned a provincial Nature Conservancy Heritage Rank of S5B, SZN, meaning that it is a demonstrably widespread, abundant, and secure breeder in the province and essentially ineradicable under present conditions, with zero non-breeding sites of practical conservation concern (i.e., it migrates through the province, but in an irregular or unpredictable fashion; it doesn't stop or stage at any one site on an annual, regular or predictable basis). Currently, the Red-headed Woodpecker is an uncommon but regular breeder in Manitoba, with an estimated 1,000 to 10,000 pairs breeding annually in the province (R. Koes pers. comm. 1995). J. Duncan (pers. comm. 1995) stated that the species is frequent in riparian corridors in the southern portion of the province, and estimated the breeding population to be over 10,000 individuals (within the estimate given above). From the available information, it appears that the northern edge of the Red-headed Woodpecker's range in Manitoba has contracted, but further south in the province the species is still secure.

Ontario

Numbers of Red-headed Woodpeckers have fluctuated markedly in Ontario (Woodliffe 1987). The range and numbers of this species are thought to have initially increased with the opening up of the forest for agricultural land in the south when the early settlers arrived (Macoun and Macoun 1909 in Weir 1989), and by the late 1800s or early 1900s, the Red-headed Woodpecker was a common (McIlwraith 1894; Macoun and Macoun 1909; MacClement 1915; Fothergill and Pope in Baillie 1967) and generally distributed resident in Ontario (McIlwraith 1894). The species was very plentiful along the St. Lawrence, on Wolfe Island and elsewhere, becoming rarer northward in Renfrew Co. (Macoun and Macoun 1909). Breeding birds were numerous near Black Rapids in 1898, and the species was also a common summer resident and breeder at Toronto around that time (Macoun and Macoun 1909). Fothergill (1821 in Sadler 1983) called it "one of the commonest and most noisy birds of Canada" at Rice Lake, and in June 1902 the Red-headed Woodpecker was found to be a more plentiful breeder at Rice Lake than the common flicker (Raine 1902 in Sadler 1983). Taverner (1919) stated that the species is regular and common in Canada only in southern Ontario, where it is familiar around orchards and wood lots.

After this initial increase in numbers, however, the Red-headed Woodpecker declined in Ontario. By the early 1900s, the species was still a common summer resident in Ontario, but it was much less abundant than formerly (Nash 1908). By the mid-1960s, the species had greatly declined in numbers in the province (Baillie 1967), and Todd (1963) stated that the species had disappeared from many sections of its range where it was once common. For example, the species was formerly a common summer resident in the vicinity of North Bay and Lake Nipissing (Thompson 1922 in Todd 1963), but Todd (1963) stated that it had not been noted from there in recent years. In the Muskoka and Parry Sound districts, the Red-headed Woodpecker was very rare at Port Sydney in 1883, but had become very numerous by 1893 (A. Kay in Mills 1981), and it was rare at Emsdale in 1893 but had become much commoner there by the early 1900s (J. Fleming in Mills 1981). Since then, the species has declined in numbers, and it is now considered to be rare in Muskoka and Parry Sound (Mills 1981). Mills (1981) stated that the decline in that area may be the result of the arrival of the European Starling, and the gradual reclamation of much of the land by the forest. At Rice Lake, the Red-headed Woodpecker was formerly a more common breeder than the common flicker (Raine 1902 in Sadler 1983), but for a long time after Raine's statement, it was very scarce in the area; in the early 1980s, however, there were signs of recovery (Sadler 1983). Also in the early 1900s, the Red-headed Woodpecker was considered to be fairly common in all of the western peninsula of Ontario, and abundant in many parts, but no so much so near London as formerly, where the species began to decrease about 1878 (Macoun and Macoun 1909).

More recently, Peck and James (1983) stated that the Red-headed Woodpecker has decreased markedly in Ontario in the past 50 years, but that it still occupies much of its original range. By the mid 1930s, the species had become less common in Peel Co. than the flicker, but it was still considered to be common in the southern part of the county throughout the summer (Bull 1936). Baillie and Harrington (1936) stated that the Red-headed Woodpecker breeds not uncommonly in southwestern sections of Ontario, sparingly in the central and eastern districts, and

rarely north to Lake Nipissing and southern Thunder Bay District. They listed records from Durham (Enniskillen), Frontenac (Wolfe Island, Kingston), Huron (near Goderich), Kent (Rondeau), Northumberland (Cobourg), and Simcoe (Wasaga Beach) Cos., and Muskoka District (Port Sydney). In addition, the species was a common summer resident in Middlesex Co. in the 1930s (Saunders and Dale 1933). The Red-headed Woodpecker was common on Manitoulin Island during the 1940s, but it almost completely disappeared during the 1950s, probably as a result of pesticide use (Nicholson 1981). In Prince Edward Co., the species was formerly as common as the flicker is today (Sprague 1969), but by 1930 it was considered to be "not plentiful" in the county (Snyder *et al.* 1941). Possible reasons for the decline in that area include the clearing of large oak forests, and the species' unusual susceptibility to traffic mortality along roads (Sprague 1969). Sprague (1969) stated that the Red-headed Woodpecker seems to have increased somewhat in recent years in Prince Edward Co., but he still regarded it as uncommon. Kelley (1978) described the species as especially common at Rondeau Provincial Park, but recent studies of the area found only eight territories in 1991 (Bowles and Gartshore 1992), and five in 1993 (Gartshore 1994). Don Sutherland (pers. comm. 1995) states that the situation does not look good for the species in Ontario; he saw only two Red-headed Woodpeckers while travelling through the southwestern portion of the province this summer.

The Red-headed Woodpecker has apparently declined in the Kingston region (Hastings, Frontenac, Lennox & Addington, and Leeds Cos., and Wolfe, Howe and Amherst Islands), as well. In the mid-1800s, this species was apparently common in the region (Hadfield 1859b and 1864b in Quilliam 1973), but there are not as many in the area now as there were several decades ago (Quilliam 1973). Numbers apparently declined along the St. Lawrence River and Wolfe Island in the late 1800s, where the species was formerly common (Weir 1989). Further declines occurred in the region, until by the early 1960s only a few nest sites were known (Weir 1989). By the 1970s, the species was considered to be an uncommon summer resident that occasionally winters in the area (Quilliam 1973). Numbers in all seasons remained stable in the 1980s, but various censuses suggest that the species underwent a slow decline in numbers during the breeding season, and spring and fall migrations, from 1990 to 1994. However, this may be part of a long-term cycle (R. Weir pers. comm. 1995). A total of 120 pairs were believed to be breeding annually in the Kingston region during the Atlas project (1980-1985), but only 75 to 100 pairs were estimated to be breeding in the region from 1990 to 1994 (R. Weir pers. comm. 1995). The species is currently considered to be an uncommon but regular summer resident, and spring and fall migrant, in the region (Weir 1989; R. Weir pers. comm. 1995).

In the Long Point area, the Red-headed Woodpecker population has always cycled or fluctuated wildly, but J. McCracken's (pers. comm. 1995) impression is that there has been a fairly steady decline over the last couple of decades, and certainly in the last five years. Snyder (1931 in McCracken *et al.* 1981) stated that the species was fairly common in the area, but from the mid-1930s until at least the 1950s, the Red-headed Woodpecker became scarce in the region (McCracken 1987). Preston (1956 in McCracken *et al.* 1981) noted that the species was formerly a moderately common summer resident in the Port Dover area, but had become "quite rare in recent years." By the 1970s, local populations had begun to recover somewhat, and McCracken *et al.*

(1981) stated that the species was probably still on the increase, and described it as a common and regular breeder. However, McCracken (1987) described the species as uncommon and very widespread in the area, and between 1980 and 1994, the breeding population, as well as the number of spring and fall migrants and winter residents, underwent a slow decline in the Long Point area (J. McCracken pers. comm. 1995). Historically, as many as 50 pairs may have bred in the area in any one season, but because the population fluctuates a great deal, it is hard to estimate. Currently, however, only five to 10 pairs are thought to be breeding annually in the area (J. McCracken pers. comm. 1995). Factors causing the decline are unknown; the amount of preferred habitat in the area is not declining or increasing, but competition for nest sites may be a factor (J. McCracken pers. comm. 1995). The species is currently considered to be an uncommon but regular breeder and spring and fall migrant, and a very rare and occasional winter resident, in the area; however, no Red-headed Woodpeckers wintered in the area from 1990 to 1994 (J. McCracken pers. comm. 1995).

The Red-headed Woodpecker has declined recently at Point Pelee National Park, as well. Numbers have been declining steadily during the breeding season, and particularly during spring and fall migration, since at least 1980 (probably since 1970), and the decline is still continuing. The breeding population at Point Pelee is currently very small and fragmented; an estimated zero to three pairs breed annually in the park, and probably two to five times that number bred in the area over a century ago. Immediately east of the Visitor's Centre, and north of the East Side Woodland Nature Trail, the Red-headed Woodpecker has been present for at least three years. The species is currently described as a rare but regular breeder in the park, an uncommon but regular spring and fall migrant, and a very rare, infrequent winter resident (T. Hince pers. comm. 1995).

During the Breeding Bird Atlas project (1981-1985), the Red-headed Woodpecker was recorded in 719 (39%) of 1824 squares surveyed in southern Ontario, and in 33 (24%) of 137 blocks surveyed in the province (Cadman *et al.* 1987). There was a high percentage of probable and confirmed breeding records: breeding was "confirmed" in 313 (44%) of the 719 squares, while "probable" breeding evidence was recorded in 166 (23%) of the squares and "possible" breeding evidence was recorded in 240 (33%) of the squares. In addition, breeding was "confirmed" in 21 (64%) of the 137 blocks (Cadman *et al.* 1987). Most (91%) of the Atlas abundance estimates were of no more than 10 pairs per square, which suggests that the Red-headed Woodpecker is generally uncommon, but widely distributed, in southern Ontario south of the Canadian Shield (Woodliffe 1987). Based on Atlas abundance estimates, it was roughly estimated that 2,000 to 10,000 pairs of Red-headed Woodpeckers bred annually in the province between 1981 and 1985 (M. Cadman pers. comm. 1995).

Woodliffe (1987) stated that the recent increase in the number of dead white elms as a result of Dutch elm disease led to a minor resurgence of the population in Ontario by providing additional nesting sites and food resources (insects). However, R. Ridout (pers. comm. 1995) suspects that the Red-headed Woodpecker has declined quite significantly in Ontario in the last 10 years as suitable nest trees (particularly dead American Elms) are being removed from the landscape and competition with European Starlings (and perhaps Red-bellied Woodpeckers, whose range is expanding north in the province) increases. The increase in automobile traffic is another factor likely responsible for

the general decline in the province (Speirs 1985 in Woodliffe 1987). Breeding Bird Survey data show that the species declined significantly in the province between 1967 and 1994 (at an average rate of 5.9% per year; $p < 0.01$, $n = 23$, $R.A. = 0.18$), and between 1980 and 1994 (at an average rate of 11.3% per year; $p < 0.01$, $n = 19$) (B. Peterjohn pers. comm. 1995). Based on the estimated population size during the Atlas, and the 11.3% decline in numbers calculated using BBS data, the current population size in the province is approximately 679 to 3,400 pairs; R. Ridout (pers. comm. 1995) also roughly estimated that on the order of hundreds or very low thousands of pairs currently breed annually in the province. This suggests a decline of 66% in the last 10 years. The Red-headed Woodpecker has been assigned a Nature Conservancy Heritage rank of S3S4B in the province, indicating that it is a rare or uncommon to apparently secure breeder. Currently, the Red-headed Woodpecker is considered to be a rare (to locally uncommon in the extreme south) summer resident across the province north to Kenora, Wawa, and Sudbury, a rare winter resident in the south, and a rare to common migrant (James 1991).

Quebec

The Red-headed Woodpecker has probably never been abundant in Quebec, but it was probably more abundant in the province at the beginning of the century than it is now, and it may breed in the province less frequently than it did 20 years ago (Robert 1989). The species no longer nests in some areas (such as Mount Royal and Cartierville) which were formerly used regularly (Robert 1989). Macoun and Macoun (1909) stated that the Red-headed Woodpecker was a scarce summer resident in the province, and mentioned that it was observed in Montreal on May 24, 1882 and June 24, 1883. David (1980) described the species as an uncommon visitor in the northern and central portions of the St. Lawrence Valley region of Quebec, and as a rare breeder and uncommon winter visitor in the southern portion; breeding was noted at Basses-Terres (Repentigny, Ste-Thérèse, Ile Bizard, Oka, Hudson-Heigts, Montréal) and the Appalachians, with additional records from Iles-de-la-Madeleine (1), Gaspésie (2), la Côte-Nord (1), the Laurentides (1), Lac-St-Jean (1), the Appalachians (1), and the Basses-Terres (Trois-Rivières, Ste-Croix, Sillery, Ile-aux-Grues, Tewkesbury, and Cap Tourmente). In addition to the above, the Red-headed Woodpecker was recorded in the 1960s and 1970s in southwestern Quebec at the following locations: Mount Royal in July 1970 (1), June 1971 (1), and May and June 1972 (2 each month); and Dundee/Cazaville in June 1977 (2) and May 1978 (1) (Service canadien de la faune Endangered species database). During winter, the species has been recorded in Basses-Terres at Lucerne and Rigaud (David 1980).

Between 1980 and 1988, the Red-headed Woodpecker bred in approximately 12 sites in southwestern Quebec, including: Ile Ronde (Berthier), Harrington (Argenteuil), Breckenridge, Saint-Pierre-de-Montmagny, Dundee/Cazaville, Rockburn, Saint-Justin, Philipsburg, Cap-Saint-Jacques (Montreal), Granby (Les Cèdres Golf Course), and Tingwick (Robert 1989). In addition, one adult was recorded at Ile aux Raisins (Sainte-Anne-de-Sorel) on September 7, 1986 and in 1987, but none were located in 1988, 1992 or 1994, and the species was recorded at Aylmer in September and June 1983 (2 adults), May 1984 (1), May and June 1986 (1), and July 1987 (1), but was not found there in June 1994 (Service canadien de la faune Endangered species database).

In 1992, a Red-headed Woodpecker was observed digging a nest cavity on Ile Ronde, Berthier, on June 11, but it was evicted by starlings a week later (Yank and Aubry 1992); the area was checked again on June 23 and July 1, 1994, but no Red-headed Woodpeckers were found (Service canadien de la faune Endangered species database). Other reports from the 1990s include: several reports from Breckenridge in 1990, 1991, 1992 and 1994, including one adult and one young on August 5, 1990, three adults and one young on August 25, 1991, two adults and three young on August 18, 1992, and two adults and one nest on June 26, 1994 (Service canadien de la faune Endangered species database); an adult observed at Drummondville from July 15 to July 22, 1992 (Yank and Aubry 1992); two adults at Sainte-Justine-de-Newton in 1989, 1990 and 1991, but none in 1994 (Service canadien de la faune Endangered species database); one adult at Cité des Loisirs (Hemmings Falls) on July 17 and 22, 1992, but none on June 20, 1994 (Service canadien de la faune Endangered species database); an extralimital report involving one bird that was observed at a feeder in Saint-Apollinaire for about one month in 1990, until it was found dead on July 4 (Yank *et al.* 1990); and an extralimital report at Saint-Isidore on July 19, 1990 (Yank *et al.* 1990). In addition, the following former breeding locations were checked in the late 1980s and early 1990s but the species was not found: the Saint-Pierre-de-Montmagny area (checked in 1992); Granby (Les Cèdres Golf Course) (checked in 1987, 1988, 1992 and 1994); Mount Royal (checked in 1990); and Rockburn (checked in 1988, 1990, 1991, 1992 and 1994) (Service canadien de la faune Endangered species database).

Currently, the Red-headed Woodpecker is a very rare and infrequent breeder, spring migrant, and fall migrant in Quebec, and it has been assigned a provincial Nature Conservancy Heritage Rank of S2 (imperiled). In addition, the breeding population in the province is very localized (F. Shaffer pers. comm. 1995). The Red-headed Woodpecker breeds regularly in the St. Lawrence corridor (Robert 1989), and it has bred at Breckenridge since at least the early 1980s (F. Shaffer pers. comm. 1995). Shaffer (pers. comm. 1995) states that most breeding sites in the province are used for one or a few years only, and then abandoned. The species is a rare breeder and an accidental winter visitor in the Montreal area, and an accidental visitor to the Laurentides (two records only) (Bannon 1991). In the Hull region, it is an irregular breeder in the south (Club des ornithologues de l'outaouais 1985). In 1989, Robert (1989) suggested that the Red-headed Woodpecker be designated as a Vulnerable species in Quebec, and it is now recommended that the species be legally designated as Vulnerable or Threatened in the province, in accordance with the Quebec law (*Loi sur les espèces menacées ou vulnérables*). However, it could take one or more years for the designation to become official (F. Shaffer pers. comm. 1995).

Robert (1989) stated that fewer than 15 pairs probably breed annually in Quebec, but only three sites have been used since 1990 (Breckenridge, Sainte-Justine-de-Newton, and Cité des Loisirs in Hemmings Falls), and only one of these (Breckenridge) has been used in each of the years (F. Shaffer pers. comm. 1995; Service canadien de la faune Endangered species database). Shaffer (pers. comm. 1995) believes that the species underwent a slow decline in the province between 1990 and 1994.

The Maritime Provinces

The Maritime provinces do not lie within the normal range of the Red-headed Woodpecker, and the species is not treated as belonging to the regular avifauna of the Maritimes (Erskine 1992). It has never been a regular breeder in any of the Maritime provinces (Squires 1976; Tufts 1986; Erskine 1992), and it may have been no more abundant there in the 17th and 18th centuries than it is now (Erskine 1992). MacClement (1915) stated that the Red-headed Woodpecker is rare in the eastern provinces, and Macoun and Macoun (1909) stated that the species is "occasionally met with in New Brunswick" and is "very rare in Nova Scotia." Downs (1888 in Tufts 1986) described the species as a "mere straggler" in Nova Scotia, and it is still regarded as a rare vagrant there (Tufts 1986). The only confirmed breeding record for the Maritime provinces occurred near Saint John, New Brunswick on June 15, 1881, when a nest was discovered in a stub eight feet from the ground (Chamberlain 1882c in Squires 1976). Other historical records from New Brunswick (all from the central and southern part of the province) include: a pair seen at Jemseg on May 12, 1962; three shot at Loch Lomond, Saint John Co., on May 24, 1873; one shot at Beaver Dam, York Co., on June 1, 1911; a pair stayed at White Head Island, Grand Manan, in June and July 1969; four seen at Grand Manan on September 26, 1969, and five from October 5 to 10, 1968; an immature observed at Fredericton for several days until November 28, 1969; and one found at West Musquash on December 26, 1972 (Squires 1976).

One individual was collected at Ketch Harbour, Halifax Co., Nova Scotia, around 1884 (Piers 1984 in Tufts 1986), and the Red-headed Woodpecker was not recorded in that province again until 1928. One was found in the province in each of 1949, 1952 and 1953, but since 1962 the species has occurred more regularly, with reports every year except 1977. Many of these reports were from the fall (21 in October, and 11 each in September and November), with only a few from the breeding season (three in June, and two each in May and July). One was recorded in April, and two overwintered at feeders (Tufts 1986).

Only four records were reported to the Maritime Province's Breeding Bird Atlas (1986-1990): two in southern New Brunswick, including a probable breeding record southwest of McAdam from May 17-30, 1987, and a possible breeding record near Apohaqui on June 27, 1986; and two in Nova Scotia, including a possible breeding record in Amherst in early June 1987, and another possible breeding record near Pubnico in June 1988 (Erskine 1992). There is no solid evidence that this species now breeds anywhere in the Maritimes, but it is frequently observed in autumn, and it sometimes successfully winters at feeders and is seen in early summer (Erskine 1992). The Nature Conservancy considers the Red-headed Woodpecker to be accidental (SA) in both New Brunswick and Nova Scotia.

HABITAT

Habitat preferences and distribution of habitat

General

Throughout its range, the Red-headed Woodpecker can be found in thinly treed deciduous forests, woodland and field edges, areas with dead trees (as in Dutch elm disease), urban parks, farmyards, along rivers and roads where there are a few scattered large trees, and in marshy areas (Robert 1989; Bohlen 1989; U.S. Forest Service 1977). The species also seems to prefer timber stands that have been treated with herbicides or burned (U.S. Forest Service 1977), savanna-like grasslands with scattered trees and forest edges, and open areas with snags and lush herbaceous ground cover, but not woods with closed canopies (U.S. Forest Service 1977; DeGraaf *et al.* 1980). Breeding habitat in the Northeastern United States consists of lowland and upland habitats, river bottoms, wooded swamps, beaver ponds, open deciduous woods, groves of dead and dying trees, orchards, and open agricultural country. Michigan Atlas Habitat Survey data showed a clear preference for dry and mesic deciduous forest areas (oak or oak-hickory and beech-sugar maple) in both peninsulas, but a few were found in floodplain forests, and residential and roadside areas with trees greater than 50 feet (15 m) were also used (Pitcher 1991). A study conducted in an old mature woodlot in southwestern Virginia found that the species preferred to nest in areas of high basal area, tall canopy, a low density of stems, and an open understory, that were near clearings; it nested relatively high above the ground in trees with great DBH and large diameter at the nest (Conner and Adkisson 1977).

Canada

In Canada, Red-headed Woodpecker breeding habitat consists of open woods, burntlands, groves, and scattered large trees in open places (Godfrey 1986). In Saskatchewan, the species typically breeds in riparian habitat or old farmsteads and plantations that have dead trees (A. Smith pers. comm. 1995). One nest in Lumsden was in a dead cottonwood tree (Shadick 1980). The amount of suitable habitat in Saskatchewan is a direct result of dams flooding out riparian areas, and flooding downstream (A. Smith pers. comm. 1995). Preferred breeding habitats in Manitoba include open aspen and/or oak woodland (especially those that are heavily grazed) with a high fraction of dead or sickly trees, mature deciduous riverbottom forest, bur oak bluffs, and larger city or town parks (R. Koes and P. Taylor pers. comm. 1995). In the Great Plains states, the Red-headed Woodpecker breeds in relatively open forests or woodlots, as well as in urban parks and wooded housing areas (Johnsgard 1979).

In Ontario, the species generally breeds both in and at the edge of predominantly open deciduous, and occasionally mixed, woodlands; in areas flooded by beavers; in fields and pastures, and in fence rows and roadsides on agricultural land; in city parks, ravines, golf courses, and residential gardens; and at the edges of ponds, rivers, and river flood plains (Peck and James 1983). Suitable habitat in the province is found throughout the Carolinian Forest region and in agricultural

areas in the Great Lakes-St. Lawrence Forest region (Woodliffe 1987). In the Kingston area, the Red-headed Woodpecker breeds in open mature deciduous woods (oaks and apple orchards favoured) especially near farmlands and hedgerows (R. Weir pers. comm. 1995), while in the Long Point area, it appears to prefer open, woodland swamps with many dead trees (J. McCracken pers. comm. 1995). McCracken *et al.* (1981) found territorial birds on three census plots in the Long Point area: red oak-sugar maple savannah, birch-oak savannah and wetland, and wet woodland. At Point Pelee National Park, the species selects clusters of old trees in mature deciduous forest. It usually nests in Hackberry, which is presently dying off in large numbers. Outside of the park, the species tends to select more mature woodlots with dead trees, and urban parks with dead trees (T. Hince pers. comm. 1995).

Habitat requirements in Quebec are probably similar to those mentioned above. The site used in Breckenridge was a field with dead elms (F. Shaffer pers. comm. 1995).

Migration

Habitat used during migration is generally the same as that used in the breeding season (A.O.U. 1983). In Ontario, the Red-headed Woodpecker can be found during migration in the Long Point area wherever there are trees, but it generally prefers rather open country (it avoids closed canopy) (J. McCracken pers. comm. 1995). At Point Pelee National Park, the species uses wooded areas and scrubby thickets in migration (T. Hince pers. comm. 1995), and in the Kingston region, any dead trees along the Lake Ontario shoreline are used as perches (R. Weir pers. comm. 1995). The species is not often observed on migration in Manitoba, but it is occasionally encountered in agricultural areas (i.e. along fence rows or shelterbelts in cropland) (R. Koes pers. comm. 1995). The Red-headed Woodpecker often appears on coastal islands and barrier beaches in Massachusetts following cold fronts in the fall, and it also occasionally appears inland, near corn fields, in the fall (W.R. Petersen pers. comm. 1995).

Winter

In winter, the Red-headed Woodpecker occurs primarily in open-canopy habitats of the mixed mesophytic and deciduous forest and the tree and shrub savanna. It appears to be absent from the mixed deciduous and coniferous forest of the north, which has a fairly closed canopy and an average minimum January temperature of below 10 F (-12 C) (Root 1988). The occurrence of the Lewis' Woodpecker may partially determine the southwestern range edge of the Red-headed Woodpecker (Root 1988). Root (1988) stated that optimal Red-headed Woodpecker wintering habitat is found in the open forests of the central Midwest, and DeGraaf *et al.* (1980) stated that in winter, the species moves from forest edge to forest interior. Oaks and maples that provide mast are important components of winter habitat. In Manitoba, birds often visit feeders in winter; in fact, one area that has been used five or six times in the last 10+ winters consists of an open (grazed) aspen woodland with a nearby feeder. Infrequently used areas in Manitoba have been suburban in nature, with tall, mature trees (R. Koes pers. comm. 1995). The species only occasionally winters in the Kingston region of Ontario, but farmlands, and feeding stations with suet, are favoured when it does

(R. Weir pers. comm. 1995). At Point Pelee National Park, the species is found primarily in mature oak forests in the winter (T. Hince pers. comm. 1995). In Massachusetts, wintering birds almost exclusively visit feeders in areas where there tend to be a large number of oak trees with a plentiful supply of acorns to eat in addition to the food they acquire from the bird feeders (W.R. Petersen pers. comm. 1995). Wintering habitat in Indiana consists of oak-hickory woodlands or beechwoods; old oak woodlots containing overmature trees with many cavities and dead branches are used frequently when the acorn crop is large, and water-killed trees bordering lakes, marshes and swamps are also favoured (Mumford and Keller 1984).

Trend in quantity and quality of critical habitats

In general, the amount of available suitable habitat throughout the Red-headed Woodpecker's range initially increased with the arrival of European settlers, but then declined as a result of forest destruction and the removal of dead trees for firewood and aesthetic reasons. Suitable habitat appears to be quite stable in Manitoba, but the die-off and subsequent removal of elm trees (Dutch Elm Disease) in riverbottom forest in certain areas may have depressed numbers in some places (i.e. the general Winnipeg area) (R. Koes pers. comm. 1995), and the felling of dead trees in the Pinawa area was likely an important factor in the species' decline there (P. Taylor pers. comm. 1995).

In the Kingston region of Ontario, there is evidence that hedgerows and fencerows are being reduced in numbers and area, and "make work" programmes that clear and cut dead trees contribute to this problem (R. Weir pers. comm. 1995). At Point Pelee National Park, nesting trees have been cut down by mistake in order to get rid of 'hazardous' old trees (T. Hince pers. comm. 1995). Habitat in the Long Point area is stable (J. McCracken pers. comm. 1995).

Habitat protection

Red-headed Woodpecker breeding habitat in Canada is largely unprotected. The species is on Robert's (1989) list of Vulnerable species in Quebec, and it has been recommended that the Red-headed Woodpecker be legally designated as Vulnerable or Threatened in the province, but this may take one or more years to become official (F. Shaffer pers. comm. 1995). Once the designation does become official, habitat in Quebec may be protected to some degree.

In Ontario, recent amendments to the Planning Act under Bill 163, which have been approved by the Provincial Government but will not come into effect until the legislation is proclaimed, would apply to Red-headed Woodpecker habitat if the species is officially designated as "Endangered," "Threatened" or "Vulnerable" in the province (the species' status is not currently under review in Ontario, however). These amendments fall under the Natural Heritage, Environmental Protection and Hazard Policies, and state that: "Development will not be permitted ... in significant portions of the habitat of endangered species and threatened species. Development will not be permitted on adjacent lands if it negatively impacts the ecological functions of the features listed above." Significant portions of the habitat of vulnerable species, significant natural corridors, significant woodlands south of the Canadian Shield, areas of natural and scientific

interest, shorelines of lakes, rivers and streams, and significant wildlife habitat will be classified into areas where either: "no development is permitted; or development may be permitted only if it does not negatively impact the features or the ecological functions for which the area is identified" (Ministry of Municipal Affairs 1994). In addition, the existing Trees Act allows municipalities to pass a bylaw restricting and regulating the cutting of trees; some municipalities have included special restrictions for environmentally significant areas (B. Vankierkhof pers. comm. 1994). Both of these Acts may offer the Red-headed Woodpecker some additional protection in Ontario.

GENERAL BIOLOGY

Reproductive Capability

The Red-headed Woodpecker is monogamous (Ehrlich *et al.* 1988). The male chooses the nest site, but the female must approve of it before it is used (Kilham 1959b in Short 1982). Clutch size generally ranges from three to seven eggs (commonly four to five) (Ehrlich *et al.* 1988), but in Canada, four to seven eggs are commonly laid (Godfrey 1986). In Ontario, anywhere from one to seven eggs are laid per clutch, with the average being four to five eggs (Peck and James 1994). Incubation, which is conducted by both sexes, lasts from 12 to 13 days, and starts somewhat before the last egg is laid (Johnsgard 1979; Short 1982; Ehrlich *et al.* 1988). The young, which hatch asynchronously, are altricial upon hatching, and are tended by both parents (Jackson 1976; Johnsgard 1979; Ehrlich *et al.* 1988). The young fledge in 27 to 30 days, and after leaving the nest, they tend to follow the adults until they are chased after about 25 days (Johnsgard 1979). Usually only one brood is raised annually, with two broods regular in southern parts of the range (Johnsgard 1979; Skutch 1985 in Pitcher 1991; Short 1982). However, second broods have occasionally been recorded in Pennsylvania (Harlow 1913 in Schutsky 1992), Ohio (Ingold 1994) and Ontario (two instances reported to the Ontario Nest Records Scheme) (Peck and James 1994). In addition to sometimes being double-brooded, this species is a persistent re-nester (Bent 1939; Johnsgard 1979; Ingold 1987).

The Red-headed Woodpecker is a late nester (Macoun and Macoun 1909). The breeding season in North Dakota is from early June to early August (Stewart 1975), and egg dates in the state range from June 5 to July 23 (Johnsgard 1979). Egg dates in Ontario range from May 14 to July 21 (James 1991; Peck and James 1994), and broods have been found in tree holes in the Kingston region from June 4 to July 27 (Weir 1989). Nests with young have been reported in the province from June 14 to July 17, and fledged young have been observed on July 15 and 22 (Speirs 1985). At Whytewold, Lake Winnipeg, Manitoba, an adult was observed feeding young in the nest on June 29 (hole number 1) and July 5, 1982 (hole number 2), two nearly-fledged young were observed close to the cavity entrance on July 18 (hole number 2), and two fledged young were seen on July 17 (hole number 1) (Bancroft 1983). In Quebec, a nest was recorded on June 26, and adults with young have been observed on July 7, July 30, August 5, August 18, August 21, August 25, and September 10 (Service canadien de la faune Endangered species database).

Because the young hatch asynchronously, the late-hatching young are smaller than the others, and the smallest of these probably fails to survive in many nestings. Reller (1972 in Short 1982) found that from none to three young fledged per nest. Predation on nestlings by snakes may be severe in some areas (i.e. Black Rat Snake, *Elaphe o. obsoleta*) (Jackson 1970a in Short 1982). A study conducted in Mississippi from 1985 to 1987 found the mean number of fledglings per pair to be 2.1 (first nesting attempt) and 2.3 (second nesting attempt) (Ingold 1989). Of 16 nests located in trees or utility poles where starlings were nesting simultaneously, 11 (69%) fledged young, and three of the five unsuccessful attempts were due to the loss of a cavity limb or tree as a result of wind or human disturbance (Ingold 1990).

Species Movement

The Red-headed Woodpecker is generally considered to be migratory throughout the northern portion of its breeding range, but its movements seem to depend almost entirely on the abundance or scarcity of its winter food supply; when food is available in considerable quantities, the species can be found in reasonable numbers within its summer range in the north (Bent 1939). In fact, Red-headed Woodpeckers appear to be mobile opportunists, migrating to wherever mast can be found (Kilham 1983; Williams and Batzli 1979a and 1979b), and they appear to react to changes in mast abundance on a local scale (Smith and Scarlett 1987). Based on the number of winter records in Canada, however, the species is primarily migratory there.

When it is migratory, the Red-headed Woodpecker usually migrates in small numbers and is not noticeable, but in certain areas, notably coastal Long Island, it formerly moved in numbers (Short 1982). Non-resident Red-headed Woodpeckers generally leave their winter territories in April for the breeding areas and commence drumming and calling (Short 1982). The species is primarily found in Ontario from early May to late September (James 1991). Spring migration is evident in southwestern Ontario (i.e. Point Pelee) from mid-April through May, and most have left by late October, but scattered reports are regular in winter (Kelley 1978). Adults return to the Kingston region of Ontario by May 8, and the largest groups are consistently found at Prince Edward Point. Most have left in the fall by October 7, but the species occasionally overwinters in the area (Weir 1989). The Red-headed Woodpecker has been recorded in Quebec as early as March 23 at Breckenridge (but more typically mid to late May) (Service canadien de la faune Endangered species database), and as late as November 9 at Montreal, with two winter records (Lucerne and Rigaud) (David 1980). The species is primarily found in Manitoba from mid-May to mid-September, but it sometimes over-winters in the province (P. Taylor pers. comm. 1995). The post-breeding molt is rather late in terminating; molting adults are known from August to December, but young birds show signs of molt until the following May (Short 1982).

In Canada, the Red-headed Woodpecker winters occasionally in southern Ontario, southern Quebec, southern Manitoba, New Brunswick and Nova Scotia (Squires 1976; David 1980; Speirs 1985; Godfrey 1986; Tufts 1986). Throughout its winter range, the species experiences wide fluctuations in numbers from year to year, depending on the available food supply (Keller *et al.* 1979; Janssen 1987; Bohlen 1989; Peterjohn 1989; Pitcher 1991; Robbins 1991).

Behaviour/Adaptability

Courtship, breeding season territoriality and nest site selection

Upon arriving on their nesting areas in the spring, males call from their roosting and prospective nesting holes to attract mates, and they also drum. The male chooses the nest site, but the female makes the final determination by tapping near it when she approves of it (Kilham 1959b in Short 1982). Both sexes defend the breeding territory, and they sometimes defend it as a pair (Kilham 1983; Nichols and Jackson 1987). In a plantation in South Carolina, Kilham (1983) located six pairs in an area of five hectares, and later in the breeding season, 13 pairs had stubs in the same area. In Florida, however, breeding birds were isolated as single, scattered pairs (Kilham 1983). James (1984) stated that about 4 ha (10 acres) are required for a territory.

The Red-headed Woodpecker is noisy and vocal throughout the breeding cycle, and is therefore highly visible in the breeding season (Woodliffe 1987). The nest site seems to be the focus of courtship activities, which include mutual tapping, reverse mounting, and copulation (Jackson 1976). The species drums rather weakly, mainly in the breeding season. Tapping plays a role in pair formation and courtship (Kilham 1983).

Nest site characteristics

General

The Red-headed Woodpecker most commonly excavates its own hole, but it sometimes uses natural cavities such as existing holes in poles or posts, especially in largely treeless areas (Short 1982; Godfrey 1986; Ehrlich *et al.* 1988; NHIC database). It will not use bird houses (Ehrlich *et al.* 1988; Pitcher 1991). The species primarily nests in the trunks of dead, barkless trees, but it will also use dead stubs in live trees (Short 1982; Godfrey 1986; NHIC database). The nest tree is usually more or less in the open (Kilham 1983). Nest excavation is conducted mainly or entirely by the male, and takes anywhere from six to 17 days to complete (Short 1982; Kilham 1983; Jackson 1976; Ehrlich *et al.* 1988). Excavation is often begun where there is an existing crack, and the shape of the entrance is often affected by preexisting cracks (Jackson 1976; Johnsgard 1979). Excavated holes often face south or west (Reller 1972 in U.S. Forest Service 1977), and are typically 2-25 m (7-83 ft) above the ground, 1.8 inches (4.5 cm) in diameter, and 10 to 18 inches (25 to 45 cm) deep (Forbush 1955; Reller 1972 in U.S. Forest Service 1977; Ehrlich *et al.* 1988; Pitcher 1991; NHIC database). Individual pairs may excavate new holes each year, but they commonly nest in the same tree or cavity in successive years (U.S. Forest Service 1977; NHIC database).

Ontario

Most nest cavities reported to the Ontario Nest Records Scheme were in dead or partially dead deciduous trees, but three were in live trees, and hydro poles and hollow posts were also occasionally used. Eleven deciduous tree species were used for nest sites, including elm, maple, oak, and birch species. Nest cavities were in the trunk or in main limbs of the trees, and ranged in height from 2 to 24.5 m (7 to 80 ft). Hole diameters of four nests ranged from 5 to 7.5 cm (2 to 3 inches), and cavity depths of another four nests were all 25.5 cm (10 inches). The species usually excavated its own nest, although one nest excavated by a common flicker was used. (Peck and James 1983).

Manitoba

In Manitoba, two nest cavities were found at Whytewold, Lake Winnipeg in 1982. Both were in a partly dead broken-off poplar tree, and were approximately 2.4 m (8 ft) and 3 m (10 ft) from the ground (Bancroft 1983).

Saskatchewan

One nest found at Lumsden, Saskatchewan was in a dead cottonwood tree (Shadick 1980).

Fidelity to nest site

Red-headed Woodpeckers (migratory or semi-migratory) apparently show strong nest-site fidelity. A study conducted in Mississippi from mid-July 1984 through August 1987 using individually colour-banded birds (Ingold 1991) found that significantly more banded individuals returned to either the same cavity, nest tree, or immediate area (one-ha circular plot around the nest tree) than would have been expected if the individuals were not site-tenacious. Fifteen of 45 adults returned to nest in the same tree or immediate area, but no individuals banded as nestlings returned to nest in the same one-ha plot. All individuals that returned to the same area to nest had been successful at fledging at least one young during the previous year. European Starling (*Sturnus vulgaris*) competition appears to have little effect on whether or not the Red-headed Woodpecker will return to the same area to nest.

Competition with other bird species

General

The Red-headed Woodpecker is strongly aggressive, and because of this, it is frequently involved in encounters with other species (Short 1982). This aggressiveness is often related to the defense of food storage sites in the winter, and consequently, many of the encounters involve actual and potential competitors for food. In addition, breeding adults attack visitors to the dead trees in which they nest, and they also may drive birds away from a perch in a tree (Short 1982). The Red-bellied Woodpecker, and to a lesser extent the Downy Woodpecker (*Picoides pubescens*), are attacked the most often (Short 1982; Kilham 1983).

Competition during the winter

The Red-bellied Woodpecker is a serious competitor for acorns and nuts in the fall and winter, and Red-headed Woodpeckers are interspecifically territorial against Red-bellieds in the winter (Short 1982). Natural observations (Williams and Batzli 1979a) and controlled experiments (Williams and Batzli 1979b) found that the Red-bellied Woodpecker's horizontal distribution was restricted by the Red-headed Woodpecker (the former species was displaced from the upland to the lowland portion of the study area when the latter species was present), and Downy Woodpeckers were restricted in vertical space (that species was forced to forage lower in the canopy in upland areas, and to use a wider variety of tree species and limb diameters, when Red-headed Woodpeckers were present). However, R. Ridout (pers. comm. 1995) believes that the Red-bellied Woodpecker is the more aggressive of the two species, and that the northward range expansion of the Red-bellied in Ontario may be partially responsible for the decline of the Red-headed in the province. Excluding other woodpeckers, birds that are most frequently attacked in winter include White-breasted Nuthatches (*Sitta carolinensis*), Tufted Titmice (*Parus bicolor*), and Blue Jays (*Cyanocitta cristata*) (Short 1982).

Competition during the breeding season: Red-bellied Woodpeckers

Red-headed and Red-bellied Woodpeckers are sometimes competitive in the breeding season, as well; in a study conducted in Mississippi, six Red-bellied pairs lost nest holes to Red-headed (Ingold 1989). The two species are very closely related, and are sympatric throughout much of eastern North America (Jackson 1976). In Canada, these species' ranges overlap in southern Ontario. Jackson (1976) found that Red-headed and Red-bellied Woodpeckers have similar courtship displays, copulatory behaviour, vocalizations, choice of tree species and limb stubs for nest sites, nest height, nest limb diameter, nest dimensions, and incubating and brooding behaviour. Differences are as follows: Red-headed Woodpeckers prefer nest limbs without bark and start their nest cavities at a pre-existing crack; the Red-headed Woodpecker's breeding cycle begins later; Red-headed prefer to nest in open areas (as opposed to more wooded sites which Red-bellieds prefer); and Red-headed forage extensively by flycatching and stooping (flying to prey on the ground) during the breeding season, whereas Red-bellieds forage more by tree surface gleaning. These differences, which serve to lessen nest site competition between the two species, appear to be widespread throughout the Red-headed Woodpecker's breeding range. They may have originated as a result of the migratory tendency of the Red-headed Woodpecker versus the non-migratory habits of the Red-bellied Woodpecker, and are likely the factors that allow these two species to exist sympatrically where their ranges overlap (Jackson 1976).

Competition during the breeding season: European Starlings

Competition with European Starlings (*Sturnus vulgaris*) for nest holes is often intense where starlings are abundant (Bailey and Niedrach 1965 in U.S. Forest Service 1977), and starlings are consequently frequently attacked during the breeding season (Short 1982; Kilham 1983). Ingold (1989) found that in 62 interactions between the two species, Red-headed Woodpeckers were aggressors 88% of the time, while Ingold (1994) found the two species to be about equally aggressive. Some authors (i.e. Short 1982; Ingold 1994) found that Red-headed Woodpeckers are often successful in driving starlings away from their nest cavities, but others state that starlings are more aggressive, and usually win during battles over nesting cavities (i.e. Pitcher 1991; R. Ridout pers. comm. 1995). In fact, competition with starlings for nest sites (and the resulting usurpment of nest cavities by the starlings) is generally cited as one of the primary reasons for the Red-headed Woodpecker's decline throughout the breeding range this century (i.e. Quilliam 1973; Bull 1974; Fichtel 1985; Robert 1989; Peterjohn and Rice 1991; Pitcher 1991; Erskine 1992; Schutsky 1992; and D. Cutler, G. Hall, R. Ridout and F. Shaffer pers. comm. 1995). In Michigan, 52% of Red-headed Woodpecker nest cavities were usurped by starlings (Ingold 1989 in NHIC database), while 15% were usurped in east-central Ohio (Ingold 1994) and only 7% were usurped in Mississippi (Ingold 1989). The starling's short breeding season and the tendency for the Red-headed Woodpecker to nest later (incubation, nestling and fledgling periods of Red-heads are all about two weeks later than those of the starling) enable the woodpecker to avoid most starling competition (Ingold 1989 and 1994). However, the starling's earlier nesting season enables it to occupy nest sites before the woodpecker has even arrived on the breeding grounds (Ingold 1989).

Diet

The Red-headed Woodpecker is one of the most, or the most, omnivorous of all woodpeckers, consuming insects and other invertebrates (i.e. spiders and earthworms), wild and cultivated cherries, blackberries, huckleberries, strawberries, raspberries, mulberries, elderberries, chokecherries, wild and cultivated grapes, apples, pears, dogwood berries, acorns and other nuts, bark containing sap, sap alone, corn, other plant materials, and occasionally the young and eggs of other birds (Short 1982; Ehrlich *et al.* 1988; NHIC database). Insects that are consumed include grasshoppers, crickets, ants, diverse beetles and their larvae (i.e. June "bugs," carabid beetles, weevils and tiger beetles), moths and butterflies, caterpillars, and wasps (Short 1982). An analysis of 101 stomachs, collected throughout the year in various parts of its range, found that animal food (mostly insects) comprised 50% of the diet, vegetable matter 47%, and mineral matter 3% (Bent 1939). During spring and early summer, the majority of the diet is comprised of animal prey, but these items are important in the winter, as well (Short 1982). The young are fed insects, spiders, worms and berries (Ehrlich *et al.* 1988). In winter, the Red-headed Woodpecker's diet is very specialized (Williams and Batzli 1979c), with acorns comprising a large portion of the winter diet (U.S. Forest Service 1977; Williams and Batzli 1979c; Kilham 1983). However, when mast crops are low, the species will consume more corn and other seeds (Williams and Batzli 1979c), and sunflower seeds, peanuts, peanut butter, and some suet are eaten at winter bird feeding stations (Short 1982).

Acorns and various other nuts such as beechnuts are the most important plant materials consumed, and are harvested in the fall and stored (whole or in pieces) in cracks and crevices in bark that may be sealed off with wood to prevent theft (MacRoberts 1975 in Root 1988; U.S. Forest Service 1977; Moscovits 1978; Short 1982; Kilham 1983). This species also caches food items such as corn, berries, and larger insects (especially grasshoppers) (MacRoberts 1975 in Root 1988; Short 1982; Kilham 1983). Kilham (1983) found that collection of food items for storage began in the first part of September in his study area in Maryland, and continued through the first week of November. Storage areas form the winter territory, and are actively defended in the winter (MacRoberts 1975 in Root 1988).

Foraging techniques

The Red-headed Woodpecker flycatches more frequently than do other woodpeckers (James 1984; Godfrey 1986; Weir 1989), and therefore prefers openings and edges for foraging (James 1984). Most foraging for animal prey is accomplished by hawking from a perch, often to the ground; by hopping on the ground; and occasionally by swallowlike, circling flights (Short 1982). This species also tree forages, mainly by gleaning on trunks and branches, but with some tapping, and by occasionally hanging in twigs to capture insects (Short 1982). It will forage in and along fence rows and small woodlots near larger woods, preferentially on living trees, but also on the ground (James 1984). Particularly in the winter, this species forages on the ground and in trees and shrubs for berries and concealed insects (Root 1988; D. Sutherland pers. comm. 1995). Immediately after the winter territory is established, foraging consists primarily of harvesting mast (i.e. shelling acorns and finding suitable storage sites), followed by "re-storing" (extracting stored acorns, and then carrying them to an anvil to break them into tiny pieces which they then distribute over their storage posts) (Moscovits 1978; Kilham 1983).

Winter territoriality

Both male and female Red-headed Woodpeckers are very territorial in winter, and each forms a small, well-defined territory and aggressively defends it (and the food supplies within it) from both inter- and intraspecific competitors (Williams and Batzli 1979b; Kilham 1983; Peterjohn 1989). The area within the central portion of the territory is most actively defended (Moscovits 1978). A study in Florida (Moscovits 1978) found the main requirements for winter territories to be the presence of dead trees for storage space, open vegetation in order to easily defend the stored mast, and an abundant acorn supply nearby (but not necessarily within the territory). The study also found that the harvesting grounds were not defended, and may be used by several individuals; this contradicts MacRoberts' (1975 in Moscovits 1978) Louisiana study, which found that all mast was collected only from within each individual territory. Territories in central Illinois ranged from 0.2 to 0.8 ha (mean 0.38 ha) in size (Williams and Batzli 1979b); in Maryland, 0.1-0.2 ha (Kilham 1958b in Moscovits 1978); in Louisiana, 0.8-1.2 ha (MacRoberts 1975 in Moscovits 1978); and in Florida, 0.04-2.0 ha (Moscovits 1978). These territories have both horizontal and vertical dimensions, and are probably small so that they are easier to defend (Kilham 1983). They also appear to be compressible, probably correlated with the habitat's mast production (Moscovits 1978). The species remains within its winter territory as long as food is available (Peterjohn 1989). In winter, each individual has one main roost hole and a few alternates (Kilham 1983). Resident Red-headed Woodpeckers may use winter roost holes as nests during the breeding season (Short 1982).

Monomorphism

Male and female Red-headed Woodpeckers are the most monomorphic of all woodpecker species, and Kilham (1978 and 1983) believes that this is related to fall territories; since females look like males, they are able to compete for, and maintain, prime winter territories, rather than being displaced by the males to less favourable areas. Nichols and Jackson (1987) believe that the monomorphism may also have an adaptive value in interspecific encounters, enabling females to be as equally involved as aggressors in nest usurpation attempts.

Susceptibility to various man-made and natural conditions

The Red-headed Woodpecker is easily disturbed by human activities (Jackson 1976), and some human disturbances leading to habitat loss (i.e. forest destruction, clearcutting, "clean" agricultural practices, and the removal of dead trees) have contributed to declines throughout the species' range. Because a large portion of its summer diet consists of insects, pesticide use and pollution may also negatively affect this species. The Red-headed Woodpecker is noisy and vocal (and therefore highly visible) during the breeding season, and it is very aggressive. The species is not susceptible to special conditions such as fire or severe winters. Captive breeding and transplanting programs have apparently never been attempted in Canada, and are not recommended or warranted at this time.

LIMITING FACTORS

Factors believed to be responsible for the general decline of the Red-headed Woodpecker throughout its range during the 20th century include habitat loss due to firewood cutting (especially during the oil shortage in the 1970s), clear-cutting, agricultural practices such as "clean farming" methods and the removal of dead trees and branches for aesthetic reasons, the arrival of the European Starling in the 1920s and 1930s and the resulting competition with starlings for nest sites, and increased mortality as a result of collisions with cars (increased road traffic) while the birds are stooping for insects along roads (Bull 1974; Fichtel 1985; Woodliffe 1987; Robert 1989; Peterjohn and Rice 1991; Pitcher 1991; Erskine 1992; Schutsky 1992). Hunting during the 19th century also contributed to the species' decline (Ouellet 1974 in Robert 1989; Schutsky 1992). Robert (1989) listed starling competition and increased traffic mortality as the two primary factors responsible for the decline, while Baillie (1967) believed the decrease in Ontario was a result of the clearing of the big oak forests, and the species' unusual susceptibility to traffic mortality. K. Smith (pers. comm. 1995) believes that "urban cleansing" (removal of dead trees and branches), and perhaps starling competition, are largely responsible for recent declines. Dutch elm disease in the 1950s, and the subsequent spraying with DDT, caused heavy mortality among several woodpecker species in Michigan (Wallace *et al.* 1966 in Pitcher 1991) and undoubtedly elsewhere, but a minor resurgence in certain populations occurred when the elm trees died (Woodliffe 1987). In New York, various introduced diseases that have decimated some of the species' preferred trees (such as American chestnut and American beech), and food preferences that have led to conflict with humans, are cited as other possible factors in the decline in that state (Spahn 1988). In addition, the Red-headed Woodpecker is easily disturbed by human activities (Jackson 1976). Ingold (1994) stated that the availability of suitable nest cavities and sites for nest cavities (i.e. dead limbs and snags) limits the reproductive success of hole-nesting birds.

The re-establishment of closed-canopy forests on the Canadian Shield in Ontario (and undoubtedly elsewhere in Canada where forests are becoming re-established) has caused a decline in Red-headed Woodpecker numbers in those areas (Mills 1981), and in all probability limits any northward range expansion in the province. When forests were initially cleared during European settlement, the species increased in numbers in several areas on the Shield in Ontario, but Atlas data indicates that the Red-headed Woodpecker is now very rare anywhere north of the Shield (Cadman *et al.* 1987).

In the Kingston region of Ontario, Quilliam (1973) believed that the increase in starlings and their take-over of many former Red-headed Woodpecker nest sites was the main cause of the Red-headed Woodpecker decline in that region, but Weir (1989) stated that although nest site competition between starlings and Red-headed Woodpeckers occurs, it is not known how serious an impact this has made on the woodpecker. Weir (1989) lists fencerow destruction and pesticide use associated with intensive farming methods, and the removal of dead or dying trees in woodlots, as contributing factors in the decline in the Kingston region. The almost complete disappearance of the species from Manitoulin Island, Ontario during the 1950s was "intimately entwined with the use of pesticides" (Nicholson 1981 in Woodliffe 1987). Sprague (1969) blames the species' decline in Prince Edward Co. on the clearing of large oak forests, and increased traffic mortality.

Competition with starlings for nest sites, and the cutting of dead trees, have negatively affected the number of breeding Red-headed Woodpeckers in Quebec, as well (F. Shaffer pers. comm. 1995). Clean management practices (i.e. cutting down dead trees) have detrimentally affected the Red-headed Woodpecker in Saskatchewan, and dutch elm disease is moving into the province, which will probably affect the species, as well (A. Smith pers. comm. 1995). Pesticide use on the prairies may also be a problem.

In Manitoba, the die-off and subsequent removal of elm trees in riverbottom forest in certain areas (such as the Winnipeg area) may be responsible for declines there (R. Koes pers. comm. 1995), and the felling of dead trees was probably an important factor in the decline in the Pinawa area (P. Taylor pers. comm. 1995). Elsewhere in the province, competition with European Starlings for nest sites may be a limiting factor (P. Taylor pers. comm. 1995).

Nests (eggs and young) are sometimes preyed upon by the black snake (*Coluber constrictor*) (Bent 1939; Schutsky 1992). In addition, creosote-coated utility poles are lethal to eggs and young reared in them (Ehrlich *et al.* 1988).

SPECIAL SIGNIFICANCE OF THE SPECIES

The Red-headed Woodpecker breeds and winters exclusively in North America. The Nature Conservancy considers the species to be demonstrably secure globally, and apparently secure in Canada. The species was persecuted in the past because of its tendency to consume fruit being grown commercially, and because it sometimes nests in telephone poles and fence posts. However, it is not commercially exploited or captive reared in Canada or the United States at the present time. Currently, the species is probably not (in general) subject to adverse public attitudes; in fact, its striking plumage and conspicuousness in the breeding season probably make it popular with birdwatchers and other naturalists.

The Red-headed and Red-bellied Woodpeckers are very closely related, and are sympatric throughout much of eastern North America (Jackson 1976). In Canada, these species' ranges overlap in southern Ontario. The Red-bellied Woodpecker is a serious competitor for acorns and nuts in the fall and winter, and Red-headed Woodpeckers are interspecifically territorial against Red-bellieds in the winter (Short 1982). In addition, the two species are sometimes competitive in the breeding season, particularly over nest holes (Ingold 1989). Studies have shown that Red-headed Woodpeckers are almost always dominant over Red-bellied Woodpeckers (Williams and Batzli 1979a and 1979b; Short 1982; Kilham 1983; and Ingold 1989), although R. Ridout (pers. comm. 1995) believes that the Red-bellied is the more aggressive of the two species. The similarity of the two species and their competitive nature, along with the very aggressive nature of the Red-headed Woodpecker, make both species interesting subjects for scientific study, and make it important to preserve the gene pool of each species. In addition, male and female Red-headed Woodpeckers are the most monomorphic of all woodpecker species in North America, further adding to the species' scientific interest and importance.

At the present time, the Red-headed Woodpecker is unclassified throughout Canada, but it has recently been recommended that the species be legally designated as Vulnerable or Threatened in Quebec. The only other woodpecker species that is currently designated in Canada is the White-headed Woodpecker (*Picoides albolarvatus*), which is officially Threatened in the nation. In addition, the Lewis' Woodpecker (*Melanerpes lewis*) is of concern to wildlife biologists in British Columbia. The primary factor limiting the Red-headed Woodpecker's survival (the availability of suitable nest cavities and sites for nest cavities) limits the reproductive success of all hole-nesting birds (Ingold 1994).

EVALUATION AND PROPOSED STATUS

The Red-headed Woodpecker breeds and winters exclusively in North America. In Canada, the species breeds in southern Saskatchewan, southern Manitoba, southern Ontario, and southwestern Quebec (and formerly southern New Brunswick). According to the Nature Conservancy, the species is demonstrably widespread, abundant and secure globally (G5), but it has declined markedly throughout most of its range in North America this century, and particularly in the last 15 years. Breeding Bird Survey data indicate that the Red-headed Woodpecker has declined significantly throughout North America between 1966 and 1994 (at an average rate of 1.9% per year), and between 1980 and 1994 (at an average rate of 4.4% per year). In Canada, BBS data show a decline in numbers between 1966 and 1994 (at an average rate of 2.2% per year), and between 1980 and 1994 (at an average rate of 4.2% per year), but the trends were not significant and were based on fewer than 50 routes. In addition, the Red-headed Woodpecker has declined in all states bordering its Canadian breeding range, as well as in several others. The species was on American Birds' Blue List from 1972 until 1981, and was on the "Special Concerns" list in 1982 and 1986.

Declines have been noted in all of the provinces within the Red-headed Woodpecker's breeding range, including Ontario where BBS data indicate that it declined significantly between 1966 and 1994 (at an average rate of 5.9% per year), and between 1980 and 1994 (at an average rate of 11.3% per year). The Red-headed Woodpecker was placed on Robert's (1989) list of Vulnerable species in Quebec, and it has been recommended that the species be legally designated as Vulnerable or Threatened in that province. In addition, the Nature Conservancy considers the species to be imperiled (S2) in Quebec, and critically imperiled (S1) in Saskatchewan. Currently, the size of the breeding population in Canada is quite small: 10-100 (but probably 10-20) pairs in Saskatchewan, 1,000-10,000 pairs in Manitoba, 700-3,400 pairs in Ontario, and fewer than 15 pairs in Quebec.

In general, suitable breeding habitat initially increased with the arrival of European settlers, but then declined as a result of forest destruction, the removal of dead trees and branches for firewood and aesthetic reasons, and intensive agricultural practices. Loss of nesting habitat is considered to be one of the primary factors in the species' decline this century throughout its range in the United States and Canada. Other factors currently limiting Red-headed Woodpecker populations in Canada are competition for nest sites with the European Starling, and increased mortality as a result of collisions with cars (increased road traffic). Hunting during the 19th century, and pesticide use this century, have also contributed to the decline. In addition, the species is very noisy and vocal in the breeding season, is very aggressive, and is easily disturbed by human activities, all of which may make it more susceptible to danger.

Because the Red-headed Woodpecker has declined significantly throughout its range in North America this century (particularly in the last few decades), together with the facts that it has apparently declined in all Canadian provinces in which it breeds, and that the population in Canada is quite small and susceptible to several ongoing problems such as habitat loss, starling competition, and increased road traffic, it is recommended that the Red-headed Woodpecker be designated as "Vulnerable" in Canada.

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