

*Natural. Valued. Protected.*

# Wild Turkey Management Plan for Ontario

*Ontario Ministry of Natural Resources  
2007*



## EXECUTIVE SUMMARY

### *MNR Context*

The mission of the Ontario Ministry of Natural Resources is to manage Ontario's natural resources in an ecologically sustainable way to ensure they are available for the enjoyment and use of future generations.

MNR's mandate is to provide leadership and oversight in the management of Ontario's fish and wildlife resources, including species at risk; Great Lakes management; fish culture and stocking; resource monitoring, assessment and allocation; research, food safety and disease control; enhancing fishing and hunting opportunities.

This plan has been developed in the context of MNR's strategic direction in *Our Sustainable Future* and consistent with other ministry policies and priorities including *Ontario's Biodiversity Strategy* and the provincial *Endangered Species Act, 2007*.

### *Ontario Wild Turkey Population History and Program Background*

The eastern wild turkey (*Meleagris gallopavo silvestris*) was an important component of the biodiversity of the pre-settlement forests of southern Ontario. It was reported north to Lake Simcoe and eastward between Toronto and Trenton. The species was extirpated from Ontario by 1909 resulting from unregulated hunting and the loss of native forests that were cleared for agriculture.

Efforts to restore the eastern wild turkey to Ontario, which began in 1984, have been extremely successful and resulted in a rapid expansion of the number and range of the birds. The contributions of wild turkeys from Missouri, Iowa, Michigan, New York, Vermont, New Jersey, and Tennessee were critical to initiate and later accelerate the program. Trap and transfer of established Ontario wild turkeys into new areas was initiated in the winter of 1986-87. In total, approximately 4,400 wild turkeys were released at 275 sites across the province as part of the release program.

Due to the influences of forestry, agriculture, and milder climatic conditions, the occupied range of wild turkeys in Ontario is now considerably larger than it was thought to be historically. Conversely, the intensification of agriculture (i.e., removal of natural habitat, large field size, etc.) in some parts of southern Ontario has prevented the birds from uniformly filling the entire landscape of their former range.

The first legal hunt for wild turkeys in Ontario occurred during the spring of 1987 in WMUs 68 and 71. Hunting opportunities have increased and regulations have become less restrictive with increasing wild turkey populations.

The objectives for the wild turkey program in Ontario have changed somewhat over time. Previous efforts have focused on the restoration program while increasing the sustainable recreational and economic benefits from the birds. The next phase of the

turkey program will focus on sustainable management of populations and harvest in southern Ontario while providing hunting opportunities where they exist in areas farther north.

The eastern wild turkey has been restored as an important component of the biodiversity of southern Ontario and in 2007 the provincial population is estimated at over 70,000 birds and growing.

### *2007 Plan Goal, Objectives, and Strategies*

**Plan Goal:** To ensure sustainable management of turkeys as important components of the biodiversity of southern Ontario, and for the continued social, cultural and economic benefit of the people of Ontario.

#### Ontario Turkey Release and Management Framework

**Objective:** Complete restoration of wild turkeys in Ontario consistent with turkey release decision tree.

#### Landscape-level Population Management

**Objectives:** Primary – Manage wild turkey populations based on landscape level goals which are managing for sustainability in the Mixedwood Plains Ecozone and providing hunting opportunities where they exist in the Boreal Shield Ecozone.

Secondary – Maintain the quality of the spring gobbler hunt and allow fall hunting opportunities as long as there is no impact on sustainability.

**Strategy 2.1:** Provide spring turkey hunting opportunities consistent with landscape level goals.

**Strategy 2.2:** Provide fall hunting opportunities in areas with robust turkey populations (based on population level criteria) while ensuring the quality of the spring hunt.

**Strategy 2.3:** Continue monitoring wild turkey population status using established indices. Consider establishing new indices as necessary to explore population declines or to improve the responsiveness of management.

#### Human-turkey Interactions in Ontario

**Objective:** Reduce landowner concerns about turkeys and mitigate actual human-turkey conflict situations through landowner education, available tools, and best management practices.

**Strategy 3.1:** Provide educational materials to landowners informing them of science results and other publications related to crop depredation through various outlets including links on the Ministry of Natural Resources internet web site, and other agencies.

**Strategy 3.2:** Communicate options for preventing or mitigating human-turkey conflicts.

Habitat Management for Turkeys in an Ecosystem Context

Objective: Provide background information, principles and guidelines, project development suggestions, potential partnership opportunities and funding sources for the development of ecosystem-based habitat projects that will benefit wild turkeys and other native species.

**Strategy 4.1:** Provide principles and guidelines for the development of appropriate habitat projects for wild turkeys in Ontario.

**Strategy 4.2:** Provide planning tips, design concepts and habitat project ideas to landowners and other stakeholders interested in developing habitat for turkeys in Ontario. Promote successful habitat and stewardship projects that will serve as examples for development of future proposals.

**Strategy 4.3:** Develop a list of information sources, and potential partnership opportunities and funding sources for habitat projects.

*Cette publication hautement spécialisée Wild Turkey Management Plan for Ontario, 2007 n'est disponible qu'en Anglais en vertu du Règlement 411/97 qui en exempte l'application de la Loi sur les services en français. Pour obtenir de l'aide en français, veuillez communiquer avec Linda Maguire au ministère des Richesses naturelles au [linda.maguire@ontario.ca](mailto:linda.maguire@ontario.ca).*

## ACKNOWLEDGEMENTS

With this plan the Ontario Ministry of Natural Resources (also referred to as MNR or ministry) celebrates the success achieved by the wild turkey restoration program in restoring a native species that was once extirpated from the province. MNR sincerely thanks all the individuals and organizations that have helped re-establish and ensure the future of the wild turkey in Ontario. Particular thanks go to states that provided birds for release, to the Ontario Federation of Anglers and Hunters (OFAH) and to the many game and fish clubs and National Wild Turkey Federation (NWTf) chapters that raised money to support trap and transfer and who continue to support the program and the species through their volunteer efforts, and to the many landowners that allowed the release of birds on their property. Many MNR staff members, past and present, contributed greatly to the program's accomplishments. Much credit for the success of the restoration program goes to the ministry's program partners of OFAH and NWTf. Ontario Nature (formerly Federation of Ontario Naturalists) was another important partner that helped initiate the program. Two ministry technical teams- the Wild Turkey Reintroduction Steering Committee and the Wild Turkey Working Group- provided vision, directed many of the efforts of the turkey program, and were instrumental in its success. The ministry would like to sincerely thank all the members of both groups for their tremendous efforts. MNR thanks all the individuals that contributed to the development of this plan and associated materials, in particular the Wild Turkey Working Group, MNR Turkey Plan Advisory Team, and other MNR staff. We would also like to thank all those that have provided comments on various draft of this plan.



*Photograph by Alan Blewett*

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## WILD TURKEY MANAGEMENT PLAN FOR ONTARIO, 2007



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***Plan Goal: To ensure sustainable management of turkeys as important components of the biodiversity of southern Ontario, and for the continued social, cultural and economic benefit of the people of Ontario.***

## **CHAPTER 1: ONTARIO TURKEY RELEASE AND MANAGEMENT FRAMEWORK (modified from Bellamy and Pollard 2007)**

Similar to the experiences of other jurisdictions in eastern North America, the eastern wild turkey restoration program in Ontario has been extremely successful. With the early successes there were requests to release wild turkeys into novel landscapes outside the bird's historic range (see historic range, Figure 1). However, experience had shown that severe winters in Ontario limited turkey populations (Nguyen 2001) in some areas, and that active management of turkeys (including releases) for sustainable populations in all areas was not feasible. In addition, continued expansion of turkey populations was not viewed by all groups as either desirable or appropriate. A challenge to a proposed release in 2003 identified potential areas of concern for releases of turkeys outside their historic range in Ontario, including unknown ecosystem impacts and competition with other species.

To better define the spatial context for turkey releases in the province, MNR developed a decision framework based on terrestrial ecozones. This framework was based on knowledge gained from assessment of habitat suitability, overlaying habitat information on historic distribution, factoring in land-use change, and by considering prevailing weather patterns.

The Mixedwood Plain Ecozone (Figure 1) encompasses the historic range of the bird and represents a biologically suitable and ecologically appropriate landscape

framework for wild turkey releases in Ontario. With the Mixedwood Plain Ecozone boundary as its basis, a risk-based decision tree (Figure 2) was developed to consider the ecological, social, and economic risks of releasing turkeys at new locations in Ontario. Although turkeys are likely to expand their range northward into suitable habitats in years with mild winters, and the ministry will support recreational opportunities for turkeys where they exist in northern areas, the framework defines a landscape boundary where turkeys will be actively managed for sustainability within the province (see Chapter 2).

To be considered for a potential release, the site under consideration must meet three criteria, as follows:

1. It must fall within the Mixedwood Plain Ecozone,
2. It must have a suitable block of habitat to sustain a population of birds that is not occupied by turkeys and not likely to be colonized by the birds in the near future, and,
3. The ecological risks including possible impacts to habitats and other species (e.g., sensitive ecological communities, species at risk, etc.) must be considered.

If the above criteria are met the MNR will consider the social and economic benefits and costs before consulting with the public on any proposed release and making a final decision. The framework reflects MNR obligations for screening of projects under Exemption Order MNR-42. MNR wild turkey populations have now been established throughout and beyond their historic range in the province and under this framework the restoration program is nearly completed.

*Objective: Complete restoration of wild turkeys in Ontario consistent with turkey release decision tree.*

## CHAPTER 2: LANDSCAPE-LEVEL POPULATION MANAGEMENT

A population is a group of coexisting individuals of a species that interbreed, and can be difficult to define for a wide-ranging species like wild turkeys that are distributed more or less continuously across a large area. For management purposes populations may be artificially defined by Wildlife Management Units (WMUs). Habitat is generally consistent at spatial scales greater than administrative units (i.e., WMU subunits); therefore turkeys are managed at the WMU level or aggregations of WMUs, rather than by subunits.

Wild turkey populations are most sensitive to hen survival and recruitment (Roberts and Porter 1995), and established populations can fluctuate by as much as 50% of the long-term mean (Mosby 1967). Predation is an important factor affecting hen survival throughout the range of the eastern wild turkey, and nesting season is a time when hens are particularly vulnerable. In northern climates severe winters may also have a significant effect



on hen survival directly (i.e., starvation) and indirectly (i.e., making the birds more susceptible to predation and other mortality factors). Severe winters can also impact productivity during the following nesting season. This is supported by research and experience in Ontario where periodic severe winters have resulted in high turkey mortality which may decimate or eliminate turkeys in localized areas (Nguyen 2001).

The greatest control over harvest and protection against excessive harvest is obtained by regulating hunter numbers but harvest can also be limited by regulating season length, bag limit, and firearms allowed (Healy and Powell 1999). Limited access to private land in Ontario also limits hunter density and therefore harvest rate.

### Objectives:

**Primary** – Manage wild turkey populations based on landscape level goals which are managing for sustainability in the Mixedwood Plains Ecozone and providing hunting opportunities where they exist in the Boreal Shield Ecozone.

**Secondary** – Maintain the quality of the spring gobbler hunt and allow fall hunting opportunities as long as there is no impact on sustainability.

### Spring Turkey Hunt

**Strategy 2.1** Provide spring turkey hunting opportunities consistent with landscape level goals.

Wild turkeys are promiscuous breeders with most individual adult males mating with multiple females (Healy 1992).

Juvenile males, or jakes, are also capable of breeding but often don't if adult males are abundant in a local area. A single mating is capable of fertilizing the entire first clutch of eggs and can even fertilize eggs for a renesting attempt as hen turkeys can store sperm in their oviduct for long periods (Blankenship 1992). Because of these behavioural and physiological characteristics (and as long as the spring

season occurs after a majority of the breeding has taken place) spring turkey hunting of bearded birds (almost exclusively gobblers) has no direct influence on observed population fluctuations or sustainability. However, the spring season affects size and age structure of the male segment of the population, and may therefore affect spring hunt quality (Vangilder 1997). Modelling in Missouri has shown that quality turkey hunting can be maintained when up to 35% of the male population is killed during the spring season (Vangilder 1997). Spring turkey hunting in Ontario is assumed to remove approximately 30% of the male population. While percent jakes in the Ontario spring harvest varies annually dependent primarily on the previous year's reproductive success, age structure of harvested adult males has been relatively stable in recent years.

#### Criteria for opening spring seasons in a WMU have included:

1. birds breeding in the WMU at least 3 seasons following an initial release
2. an estimated minimum population of 200 birds (based on indices and observations), and
3. an increasing trend in abundance based on deer hunter observations.

While these criteria are still appropriate, almost all units where turkeys were released have already been opened to spring hunting. As wild turkeys expand their range into WMUs where releases were never made, new units will be opened to spring wild turkey hunting based primarily on criteria 2 and 3.

If issues arise regarding spring hunt quality, potential options that could be

considered for restricting spring hunting include reducing the bag limit to one bearded bird, restricting the harvest to adult gobblers only, implementing a controlled hunt (i.e., allocation of licences by WMU), and/or implementing structured seasons. While harvest of gobblers in the spring has not been shown to impact population sustainability, some jurisdictions have observed high rates of accidental shooting of hens when the spring season was not timed properly to occur when hens are beginning to nest. If evidence suggests accidental shooting of hens in spring is occurring or that breeding is being disrupted and contributing to population declines, the spring season could be opened later. Significant restrictions would only be considered under extreme circumstances and after other measures have been taken (e.g., closing fall hunts in affected units).



*Hunter safely positioned for hunting wild turkey.*

#### Fall Turkey Hunt

**Strategy 2.2** Provide fall hunting opportunities in areas with robust turkey populations (based on population level criteria) while ensuring the quality of the spring hunt.

While not as popular as spring turkey hunting in most other jurisdictions, properly managed fall seasons can

provide additional recreational opportunities while maintaining long-term population sustainability. By mid-October wild turkeys begin forming larger flocks and early hatched juvenile wild turkeys are approaching adult size. Juvenile turkeys are old enough to survive on their own but typically remain in the same flock with their hen and siblings. Juvenile turkeys naturally experience lower survival rates through their first winter compared to adult birds and similarly are more susceptible to harvest because they are less wary.

In most other jurisdictions, harvest of both gobblers and hens is legal in fall, in part because it is difficult to distinguish juvenile males from hens. Although harvest of turkey hens has the potential to influence populations, research has shown that annual fluctuations in wild turkey populations are typically independent of conservative fall turkey harvests (Vangilder 1997), and are based primarily on overall annual hen survival and reproductive success (Vangilder and Kurzejeski 1995). Turkey population growth or stability can be maintained if less than approximately 10% of the hen population is harvested (Suchy et al. 1983, Vangilder and Kurzejeski 1995). Fall turkey hunt criteria and regulations for Ontario must also consider that hen harvest can have a greater impact on populations in northern areas where winter mortality is higher.

Other jurisdictions utilize various criteria to assess the status of turkey populations and determine whether they can sustain a fall hunt. Below are examples of criteria from several adjacent or otherwise northern states for opening of a fall hunt in a management unit.

- Spring harvest reaches 0.4 birds/km<sup>2</sup> (1 bird/mi<sup>2</sup>) of turkey range and remains above that level for 3 consecutive years (Pennsylvania)



*Severe winter conditions can impact wild turkey survival, particularly of juvenile birds during their first winter.*

- Spring harvest  $\geq 0.5$  birds/mi<sup>2</sup> (New Hampshire)
- 3 years of >20% success rate in spring season and >100 birds harvested in the unit (Wisconsin)
- Spring harvest >50-100 birds within the management unit, and 1-2 bird/mi<sup>2</sup> of forest for at least 2 years (Ohio)

#### **Criteria for opening WMUs to fall hunting in Ontario:**

- A. Spring turkey harvests within the management unit  $\geq 200$  birds in each of the preceding 3 consecutive years, or 3 out of 4 years; or
- B. Harvest density  $>0.4$  turkeys/km<sup>2</sup> of turkey habitat for 3 consecutive years.

These criteria are conservative and based on overall population management objectives. However, further caution may be exercised with some WMUs such that a fall season may not be opened immediately once a WMU meets the above criteria. While Criteria A does not

consider the size of management units, and therefore harvest density could be low even at high harvest levels, a population that can sustain a male harvest of  $\geq 200$  birds is considered robust enough to sustain a fall harvest. The criteria for opening and closing seasons were also developed in consideration of the annual harvest reporting and regulation development process.

### Criteria for considering closing WMUs to fall hunting in Ontario:

- A. For units opened based on criteria A, close the fall season when spring harvest falls below 200 birds for 2 consecutive years; and/or spring harvest and deer hunter sighting indices decline for 3 consecutive years; and/or if spring harvest declines  $\geq 50\%$  in any single year.
- B. For units opened based on B, close fall season when spring harvest density falls below 0.4 turkeys/km<sup>2</sup> of turkey habitat (defined as forests plus grasslands and agricultural areas within 100m of forest) in any single year.

*NOTE: We will continue to review the effectiveness of criteria for opening and closing of seasons and propose modifications as necessary to ensure they are consistent with plan goals, objectives, and strategies. If spring turkey harvest declines appear to result primarily from a decline in hunter numbers, consideration of the need to close fall turkey seasons will emphasize criteria associated with trends in deer hunter sightings.*

Other jurisdictions have a number of considerations for establishing fall hunting season regulations. Hunter participation in fall turkey hunts tends to be self-limiting

and dependent on apparent reproductive success (i.e., hunters are more likely to purchase a licence if they observe more hens with broods during the summer). However, it is difficult to predict hunter participation when fall hunting seasons are first established. Season dates are typically set to minimize overlap of fall turkey seasons with firearm seasons for other species due to safety considerations and to reduce incidental harvest. Mandatory reporting of fall turkey harvest allows timely evaluation of outcomes and response if changes are required. Lessons learned in other jurisdictions suggest that initial fall season regulations should be conservative and additional opportunities considered in future years after allowing time to evaluate the turkey population response.

### Population Monitoring

**Strategy 2.3** Continue monitoring wild turkey population status using established indices. Consider establishing new indices as necessary to explore population declines or to improve the responsiveness of management.



*Inspecting a wild turkey hen prior to release. Several colour anomalies can be observed in wild turkeys, including blonde wing feathers.*

*ld*



*Re-releasing a radio-tagged wild turkey hen back into its natural habitat.*

Despite their large size and social behaviour, wild turkeys are a difficult bird for which to get a direct estimate or count of population size for large areas (Healy and Powell 1999). Most management agencies rely on various indirect methods to monitor turkey population trends.

Turkey harvest and hunter success provide a basic and useful index of turkey population size (Lint et al. 1993, 1995). Since turkeys were reintroduced to Ontario basic harvest indices and several other types of indices have been used to document range expansion and evaluate population status.

Additional data collected has included winter surveys, gobbling counts, mail surveys, reports of wild turkeys seen by deer hunters and general observations. Currently, data are collected by mandatory harvest reporting, reports of turkey sightings by deer hunters, and a turkey hunter mail survey that allows monitoring

of populations (Table 1). There is some redundancy in the information collected to help verify critical information, and the turkey hunting mail survey provides an estimate of non-reporting bias in mandatory harvest reports. It is important that turkey hunters understand it is not only the law that they must report their harvest but also that it provides information critical to managing the turkey resource. Failure to report affects population indices and may restrict future opportunities.

Data collected from fall harvest reporting is similar to spring. Hen harvest by WMU as a percent of the estimated spring population, combined with population trends, is very important for monitoring the effects of fall harvest on turkey populations. If concerns about population status and/or sustainability develop in specific areas, then more intensive monitoring techniques can be applied in those areas, such as brood surveys. However, brood surveys cannot be used to inform fall hunting regulations unless sufficient data are collected, current regulatory timelines are changed, and fall turkey licences are allocated in some way. The turkey population indices will be evaluated periodically and modified as needed to ensure they are providing the necessary information to support program objectives. Research projects could also be directed to address concerns regarding sustainability or to assess the accuracy of current indices.

### CHAPTER 3: HUMAN-TURKEY INTERACTIONS IN ONTARIO

In many situations complaints about turkeys come from landowners who have seen the birds and assume that damage is occurring. Investigations of landowner complaints about turkeys in Ontario and elsewhere have shown that in most cases no damage has occurred or the damage has been caused by other species of wildlife. This chapter contains basic information on human-turkey conflicts, including a general summary of scientific research results on the topic, followed by information and strategies for preventing conflicts or mitigating conflicts when they do occur.

#### Background

The clearing of deciduous forests, savannas, and prairies for agriculture significantly altered the landscapes turkeys were historically adapted to in Ontario and contributed to extirpation of the birds in the province. Turkey restoration programs in North America have been very successful in part because the birds can adapt to agricultural landscapes. The production of agricultural crops, particularly grains, may actually increase turkey carrying capacity and available range by providing an additional and readily available winter food resource. However, restoration and expansion of wild turkeys in agricultural landscapes has led to concerns by farmers about the potential for crop damage by the birds and economic loss. Concerns have also been expressed in suburban or rural areas where turkeys come into increasing contact with human development.

Most negative human interactions with turkeys develop as a result of the birds searching for food. Turkeys may spend most of their time each day feeding,

depending on season and weather conditions (Healy 1992, Hurst 1992). The birds are very active while feeding and can cover long distances in the course of a day while consuming dispersed food resources. However, deep snow and cold restrict turkey movements and the birds tend to focus their feeding on fewer, more reliable food resources.



*Wild turkeys are sometimes observed in agricultural fields during the day in early spring and may be blamed for damage done by small or nocturnal wildlife.*  
 Photograph by Alan Blewett

Turkeys consume a wide variety of wild foods which can broadly be categorized into hard mast (e.g., acorns, seeds), soft mast (e.g., wild grapes, raspberries), green vegetation, and insects. In areas where natural habitats have been replaced by agriculture, turkeys may also feed on domestic grains, forages, and berries. Young turkeys (poults) feed almost exclusively on insects for the first several weeks of life which provide the poults with the high-protein diet they require for rapid growth. Observations of poult feeding rates suggest that a 2-3 week old turkey can eat several thousand insects a day (Healy 1992). Insects are often abundant in agricultural fields such as alfalfa, buckwheat, and even soybeans. The importance of insects in the diet generally declines with age, with adults consuming insects in proportion to their availability (Hurst 1992).

### ***Turkey Damage – Perception vs. Reality***

Common complaints about damage reportedly caused by wild turkeys in agricultural areas include feeding in recently planted fields, unharvested grain fields, in silage pits and tubes, and in other stored feed; scratching in winter wheat and hay bales; and causing damage to fruit crops, vegetables, and ginseng. Near human dwellings negative interactions with turkeys can include their scratching in flower beds and mulch around shrubs and trees, visiting bird feeders, roosting on buildings and vehicles, and being aggressive toward humans and pets. Aggressive behaviour can develop in wild turkeys living close to humans but is most often symptomatic of pen-raised feral turkeys (MacGowan et al. 2006).



*Many species of wildlife, including turkeys, are known to feed on standing corn in winter.*

*Photograph by L. Norris*

Although turkey damage has been documented in some situations, the birds are often blamed for damage done by other species. There are several reasons for this. Turkeys are active during the day, are relatively large birds and therefore highly visible, and are often observed in flocks, whereas other species that damage crops (e.g., deer, raccoons, squirrels) are nocturnal, arboreal, or small and therefore not highly visible.

Research in southern Wisconsin, in an area with a high density of wild turkeys, found that while turkeys spent considerable time in fields, and their diet was composed of >50% agricultural foods, almost 80% of the agricultural food consumed was waste corn picked up off the ground, with little damage to harvestable crops (Paisley et al. 1996). Crop damage research in Ohio found that turkeys were often blamed for damage caused by deer, raccoons, squirrels, chipmunks, mice, groundhogs, and crows (Swanson et al. 2001). Similar results have been documented in other jurisdictions throughout the range of the wild turkey (Gabrey et al. 1993, Tefft et al. 2005, MacGowan et al. 2006).

The extreme winter conditions that occur in some parts of the Ontario turkey range in some years increase the potential for human-turkey interactions as extreme cold increases a turkey's metabolic demands and deep snow covers many natural food sources. Under these conditions, turkeys may discover and begin feeding on standing crops and round bales left out in fields. By the time damage is discovered it can be difficult to deter the birds.

Human-turkey interactions in Ontario's urban areas have not developed to the extent they have in some parts of the Midwest U.S. Municipal planning that minimizes human sprawl into natural areas, along with turkey management that prevents turkey populations from reaching extremely high densities in any given area, should help prevent conflicts from developing at the urban interface. Annexation of rural areas into cities and/or bylaws that prevent hunting in rural areas increase the potential for negative interactions with turkeys.

Hunting of turkeys is an effective means to manage populations and helps to keep wild turkeys wary of humans.

### *How can MNR Help?*

The Ministry of Natural Resources can help landowners by providing information on turkey ecology, damage investigation, and mitigation options including best practices. Landowners in Ontario have a number of options available to them for mitigating turkey conflicts that they may be experiencing. Landowners are encouraged to consult one or more of the materials referred to in Strategy 3.1 and Appendix 3 that provide information on investigating potential damage and determining the specie(s) responsible. Suggestions for mitigating conflicts with turkeys and best practices can be found under Strategy 3.2 and Appendix 4. In some parts of the province equipment and volunteer assistance may be available to help mitigate conflicts.

For more information about dealing with turkey or other wildlife conflicts, landowners should contact their local MNR office.

As turkeys continue to expand their range and adapt to landscape changes, and as the birds come into greater contact with an ever increasing human population, it is difficult to predict the types and level of interactions and potential conflicts that may develop. Complaints about turkeys may decrease as landowners become more familiar with the birds and their habits. The effectiveness of MNR strategies for managing conflict situations will be evaluated over time as part of regular turkey program reviews and through further development and review of Ontario's overall wildlife conflict strategy.

**Objective: Reduce landowner concerns about turkeys and mitigate actual human-turkey conflict situations through landowner education, available tools, and best management practices.**

### *Principles for Human-Turkey Conflict Management in Ontario*

- Educate landowners, stakeholder groups, and the general public about wild turkey ecology, potential conflicts, and measures that can be taken to prevent conflict
- Improve relationships with the agricultural community to foster better communication and cooperation
- Local, community-based solutions to mitigating human-turkey conflicts are consistent with Ontario's overarching approach to managing human-wildlife conflicts and provide an opportunity to tailor approaches to regional interests, needs, and mitigation options
- Respond to complaints in a consistent and timely manner
- Take advantage of other sources of assistance to mitigate conflicts, which include agricultural organizations, local stewardship councils, local National Wild Turkey Federation chapters, naturalist clubs, or game and fish clubs

### *Landowner Education about Turkey Interactions*

**Strategy 3.1** Provide educational materials to landowners informing them of science results and other publications related to crop depredation through various outlets including links on the Ministry of Natural Resources internet web site, and other agencies.

A wealth of materials has been produced related to human-turkey interactions based on research and investigations throughout the range of the wild turkey. As permitted, MNR will make these reference materials available to landowners and others that may be interested in learning more through links provided on the MNR webpage and in Appendix 3 of this plan. Most of these materials have been published by other jurisdictions and may

contain policies and regulations specific to the jurisdictions in which they were produced. They are suggested as resources to aid in understanding, investigating, and mitigating human-turkey conflicts.

### **Human-turkey Conflict Management Options**

**Strategy 3.2** Communicate options for preventing or mitigating human-turkey conflicts.

A number of options are available to prevent turkey conflicts or mitigate turkey conflicts if they do occur. These have been developed based on the experience gained in Ontario and throughout the eastern United States. As we continue to learn more about managing turkey conflicts, MNR will add to the list of options, which could be published on the internet and in fact sheets. In some areas, non-governmental volunteer assistance may be available to provide technical assistance, equipment, and manpower to help mitigate turkey conflicts.

Specific options are presented in *Appendix 4* and are divided into 3 categories:

- 1) General strategies to reduce the likelihood of turkey conflicts
- 2) General strategies for dealing with conflicts once they occur
- 3) Specific techniques for mitigating turkey conflicts

Landowners in Ontario have the right to protect their property from damage done by some wildlife species, including turkeys, by harassing, capturing, or killing the offending wildlife. These rights are described under Section 31 of the Fish and Wildlife Conservation Act (FWCA). Landowners are advised to review Section 31 of the FWCA in its entirety and contact their local district MNR office with



*Turkeys that take up residence in urban areas are usually pen-raised birds adapted to humans. Urban turkeys are a novelty but can pose traffic hazards and may become aggressive toward humans or pets.*

questions. Depending on the location, some options mentioned below may be subject to other federal, provincial, and/or municipal regulations. While landowners have the right to take lethal measures to mitigate turkey damage, the MNR does not condone the killing of wildlife if other options are available.

### **Protection of Property**

Provisions in the FWCA, which can be found in its entirety at <http://www.e-laws.gov.on.ca/index.html>.

31. (1) *If a person believes on reasonable grounds that wildlife is damaging or is about to damage the person's property, the person may, on the person's land,*

- (a) *harass the wildlife for the purpose of deterring it from damaging the person's property; or*
- (b) *capture or kill the wildlife.*

- there must be reasonable grounds to believe that wildlife is damaging or about to damage the person's property.
- control activities can only occur on the property owner's land.
- a person may not harass, capture or kill more wildlife than is necessary to protect the property or cause unnecessary suffering to the wildlife
- a property owner may also use an agent to harass, capture or kill the wildlife on their property, but the agent must be authorized by the Minister or belong to a class of agents prescribed by the regulations

## CHAPTER 4: HABITAT MANAGEMENT FOR TURKEYS IN AN ECOSYSTEM CONTEXT

This chapter provides a summary of wild turkey habitat requirements, describes the kinds of habitat projects that would generally be consistent with Ontario's Biodiversity Strategy, provides guidelines and examples to aid in the development of projects, and includes a list of information and potential funding sources for habitat projects. General guidance is intended for anyone developing habitat projects with benefits to turkeys as one objective. Specific guidance is also provided for projects in which MNR is involved to ensure consistency with Ontario's wildlife and habitat policies and practices.

### *Wild Turkey Habitat Requirements*

Eastern wild turkeys were once thought to require large tracts of mature deciduous forest ( $\geq 25,000$  acres) for populations to persist (Porter 1992). However, restoration programs have demonstrated that the birds can adapt to a range of landscape-level habitat conditions and they are now considered deciduous forest habitat generalists. Furthermore, historical accounts of early settlers provided evidence eastern wild turkeys readily made use of adjacent savanna and prairie habitat some distance from forest edges (Loomis 1890, Schorger 1966). If sufficient forest, savanna, and adjacent grassland habitats are available, wild turkeys will spend most of their time in these habitats for much of the year.

Turkey hens will nest in a variety of forest and open habitats with adequate cover at the nest site. The wild turkey's most specific habitat requirement is brood cover. Turkey poults, particularly during the first 3-4 weeks after hatch, require habitat that provides good overhead cover,



*Good brood habitat is required to support healthy turkey populations. Brood habitat must provide concealment to poults but allow ease of movement, and must have abundant insects for food.*

is sparse at ground level for ease of movement, and has abundant insects. Habitats that may provide for these needs include forest openings, savanna or diverse prairie with some natural disturbance (burning and grazing), lightly grazed pasture, hay fields, and even immature soybeans.

Adult wild turkeys eat a variety of foods. They prefer to feed on natural foods, including mast (i.e., the hard or soft fruits/seeds produced by trees and shrubs) and the seeds of grassland plants; but they will also seek out waste grains in harvested agricultural fields. Agricultural foods become more important to turkeys in years of mast failure and/or when natural foods become inaccessible due to winter conditions. Natural foods are generally better for wild turkeys nutritionally but agricultural food sources are often more concentrated, which is important when turkeys are facing severe winter conditions that limit movement. Winter weather also increases the value of specific habitats that may otherwise receive little use. Seeps tend to stay snow free longer and provide a natural foraging site for items like fern fronds. Conifers provide thermal protection for roosting turkeys that reduce energy demands under extreme cold and windy conditions.

In Ontario, all the terrestrial native plant communities found in the Mixedwood Plains ecozone can provide for at least some of the habitat needs of turkeys. Wild turkeys can also make use of swamps and the margins of other types of wetlands. Extensive conifer forests found in the Boreal Shield and farther north do not provide suitable habitat for turkeys, but turkeys have now colonized areas of the Boreal Shield that have been converted to agriculture or areas with significant hardwood forest with recent mild winters. Severe winter weather may prevent turkeys from permanently inhabiting some areas of apparently suitable habitat in Ontario. The ideal landscape habitat composition for turkeys has been reported as approximately a 50:50 mix of forest (primarily deciduous) and open land (Kurzejeski and Lewis 1985), but thriving turkey populations are found in landscapes with much less forest. Currently, the highest harvest densities of turkeys in Ontario are found in WMUs with <25% forest, or on Pelee Island which has <15% forest cover. However, four WMUs in the top five for turkey harvest density



*Typical turkey nest placement in dense concealing vegetation. Average clutch size is 10-12 eggs.*  
 Photograph by D.A. Sutherland, NHIC/OMNR

have >35% total potential turkey habitat area including grasslands and other open habitat adjacent to forest. Generally, with the exception of a few areas in the southwestern counties, where almost all natural habitat has been converted to agriculture, wild turkeys can find the resources to meet their needs throughout southern Ontario. Restoration of native habitat communities in southern Ontario will benefit native species including wild turkeys, and may help reduce concerns about turkey conflicts by providing additional natural food sources.

**Objective:** Provide background information, principles and guidelines, project development suggestions, potential partnership opportunities and funding sources for the development of ecosystem-based habitat projects that will benefit wild turkeys and other native species.

### ***Habitat Development Considerations Related to Populations and Range Occupancy***

**Strategy 4.1** Provide principles and guidelines for the development of appropriate habitat projects for wild turkeys in Ontario.

As a result of landscape-level changes (i.e., habitat fragmentation in southern Ontario), current turkey populations are probably not as widely and uniformly

distributed across their historic range compared to pre-settlement turkey populations. However, in many parts of southern Ontario where turkeys have been restored the longest, the same landscape-level changes (i.e., conversion for agriculture) may support higher densities of the birds in remaining habitat than were found historically.

Some areas in southern Ontario where turkeys have been established longest appear to have reached carrying capacity as evident by harvest statistics. However,

in areas where turkeys have been established more recently, turkey populations are expected to continue to grow and fill available habitat. Therefore, the total provincial population is expected to continue to increase.



*With landscape changes and generally milder winters, wild turkeys are expanding their range northward in Ontario.*

Areas where wild turkey populations are likely to continue to increase in existing habitat are areas where they have been released in recent years outside of their historic range. With the exception of one unoccupied area in far southwestern Ontario (see Figure 3), habitat work is not necessary to restore wild turkeys to their former range. However, habitat work could be done to improve the overall amount and/or quality of available habitat and to mitigate habitat lost from conversion to other land uses. Ecologically appropriate habitat management has the potential to alleviate turkey-agriculture conflicts by increasing natural food resources available to the birds.

### ***Habitat Development Principles***

Principles for developing or reviewing habitat management proposals (i.e., restoration or enhancement) with MNR involvement.

Habitat development proposals would generally be considered consistent with Ontario's Biodiversity Strategy if:

- a) They clearly identify the landscape context and are consistent with an ecosystem approach to habitat development (i.e., projects, including plant species to be used, are appropriate for the ecosystems they are planned for).
- b) Projects identify multiple objectives benefiting native species and habitat communities, especially those which are recognized as needing conservation attention. Projects designed to support recovery of rare species or communities should consult with the appropriate Biodiversity or Species at Risk experts in MNR.
- c) Risks to other species / communities have been assessed, and are acceptable (e.g., creation of openings in forest blocks to benefit wild turkeys and early successional species must specifically consider impact on other species requiring conservation attention, such as interior nesting birds). Consult with respective MNR District and/or Natural Heritage Information Centre for more information on local biodiversity, species of conservation concern and/or designated Species at Risk.
- d) Projects are consistent with other MNR policies, procedures, and direction, including the *Endangered Species Act* (2007), *Environmental Assessment Act*, *Environmental Bill of Rights*, etc.



*Native mast producing shrubs provide food for turkeys above the snow after other foods have been covered.*

*Photograph by Alan Blewett*

Projects developed in an ecosystem context with a primary objective to benefit wild turkeys will often have multiple benefits for other native species. The ministry encourages habitat project planners to identify the multiple benefits of such projects, and to consider any possible risks as identified in the above principles.

Habitat management proposals that would generally not be consistent with Ontario's Biodiversity Strategy include:

- Any habitat project proposal with a single-species objective
- Food plots
- Projects that pose a risk to biodiversity or species at risk
- Projects involving species that are not native to Ontario

### **Habitat Development Guidance**

**Strategy 4.2** Provide planning tips, design concepts and habitat project ideas to landowners and other stakeholders interested in developing habitat for turkeys in Ontario. Promote successful habitat and stewardship projects that will serve as examples for development of future proposals.

The majority of wild turkeys in Ontario are found in the Mixedwood Plains ecozone, which contains the historical range of the birds and is the area of active management for turkeys in the province (see Chapter 1). While it is less than 10% of the land area of Ontario, this area contains the highest levels of biodiversity in Canada, and extremely diverse vegetative communities (MNR Natural Heritage Information Center, Ontario's Biodiversity Strategy). The historic range of the wild turkey in southern Ontario was dominated by deciduous forest communities but also included many diverse wetland types and significant



*Riparian forest habitat along rivers or streams provides important movement corridors for turkeys.*

amounts of tallgrass prairie and savanna in some areas. However, southern Ontario has lost 80% of the woodlands, 75% of the wetlands, and 97% of tallgrass prairie and savanna since European settlement (Ontario Natural Spaces program, Tallgrass Ontario website; see also Land Cover of Southern Ontario map, <http://www.naturalspaces.mnr.gov.on.ca/landcover.html>). Restoring native habitats once found in southern Ontario will benefit many native species including wild turkeys.

Restoring habitat for wildlife may require considerable effort and patience but can be an extremely rewarding endeavor as the habitat develops and wildlife use increases. As the name implies, habitat restoration means recreating habitat that was formerly found at a site, either by starting from scratch (e.g., planting trees to re-establish a deciduous forest) or by "repairing" habitat using disturbance (e.g., prescribed fire), exotic species removal, or supplemental plantings. In some areas removal of a disturbance (e.g., mowing) may allow a habitat to restore itself naturally through succession. A habitat project can provide different benefits to species over time. For example, a project with an ultimate goal to re-establish deciduous forest can also provide nesting and brood habitat for turkeys in early years as annual plants and grasses grow among the tree seedlings.

### ***Planning Tips for Habitat Development Projects***

- Make sure you understand what aspects of habitat are limiting in your area (see Design Concepts below).
- Many factors interact to form the natural communities found at a particular site including soils, climate, hydrology (i.e., natural “wetness” of an area), natural disturbances, etc. Before developing a habitat project in an area, as much current (e.g., current habitat conditions/land use, soils) and historical information (e.g., pre-settlement habitat, natural disturbances) as possible should be gathered so as to inform the objectives.
- Advice from individuals knowledgeable about habitat restoration and native communities in the province should be solicited. MNR District staff can provide assistance in this regard.
- Reference sites (e.g., parks, nature reserves) that can serve as an example for a project should be visited.
- Achievable goals should be developed.
- Partnering with other landowners or groups having similar objectives should be considered.
- Opportunities to collect a small amount of seed-stock of native plants from local sources should be explored. There are now a number of commercial sources for native seeds/seedlings in Ontario. Harvesting of native seed for large-scale habitat restorations is discouraged. Contact your local MNR office for information.
- Planting a variety of native plant species may increase the future overall productivity of the system and will help provide the specific habitat needs of a wider variety of wildlife. In forests, subcanopy tree species and shrubs should be included. Prairie restorations should maximize diversity of seed mixes and use small amounts of dominant grasses. For wild turkeys, plant diversity will lead directly to a variety of plant foods (e.g., nuts, fruits, and seeds) and insects. NOTE: Some natural communities are naturally more diverse than others, work with the species naturally found in the area. Advice from individuals knowledgeable about habitat restoration and native communities in the province should be solicited. MNR District staff can provide assistance in this regard.
- Review guidelines for the restoration of native plant communities in Ontario (*Appendix 5*).
- Many native habitats take some time to mature so patience is required.
- Natural succession should be considered as a restoration technique. Some areas will contain a remnant “seed-bank” from plants that were formerly present and that may sprout and develop into the original habitat. This technique may also work if a site is adjacent to intact habitat that will naturally seed the area.
- The role of disturbances in habitat development should be considered. Some natural disturbances such as wind throw (trees knocked down by strong winds that creates small forest openings) or flooding are difficult to mimic, but others like fire and grazing may be more easily prescribed for an area.
- Assistance should be requested when necessary as there are groups available to help (e.g., Ontario Stewardship).
- Objectives and achievements should be publicized as this encourages others to get involved or to plan their own project.

### **Habitat Design Concepts to Consider for Projects in Southern Ontario**

(See also [Significant Wildlife Habitat Technical Guide](#))

- **Connectivity:** a condition of habitat on a landscape that indicates how well different populations of a species can interact; can be defined differently for different species based on their movement ability; wild turkeys are somewhat less sensitive to low habitat connectivity compared to less mobile species
- **Corridors:** strips of habitat that link larger blocks and that facilitate the movement of wildlife between disjunct habitat blocks; corridors improve the connectivity of a habitat; may not be as critical to wild turkeys as for less mobile species, but wild turkeys prefer to use corridors to move between habitat blocks. Riparian forest corridors are important for wild turkeys and many other forest-dwelling species in agriculture dominated landscapes like those of southwest Ontario
- **Dispersal:** the movement of individuals of a species away from their place of birth; this behaviour allows a species to colonize new habitats and for genetic exchange between populations; wild turkeys can disperse very long distances over a short period of time (e.g., >20 miles within days) and cross short distances of apparently unsuitable habitat without the benefit of a habitat corridor
- **Ecosystem:** a functioning unit of all the plants, animals, and other living organisms along with their environment in a given area
- **Edge:** the interface of different habitats, which forms a habitat called an ecotone; types vary from natural edges that are typically a gradual transition between the structure and species composition of the adjacent habitats, to artificial edges that are abrupt changes (forest/crops)
- **Fragmentation:** habitat alteration that breaks a large block of habitat into discontinuous pieces or a habitat block that has had some parts removed, increasing the habitat “edge”; while wild turkeys can thrive in both large forest blocks and fragmented, smaller forest habitat blocks, there are a number of other forest dwelling species (e.g., many species of song birds) that experience population declines when their habitat becomes fragmented
- **Habitat:** the place or type of site where an organism or population naturally occurs (from Canadian Biodiversity Strategy 1995); some species require a single, specific habitat type for their entire life, while others, like wild turkeys, utilize somewhat different habitats over the course of a biological year and are capable of making use of many different habitats to supply their needs; habitat management should first consider the needs of species with specific habitat requirements and species at risk
- **Interspersion:** the level of intermixing of different habitats on the landscape; species like wild turkeys that utilize different habitats during a year require at least moderate interspersion of those habitat types within their annual home range
- **Landscape:** a complex of habitats in a geographically defined area (adapted from Canadian Biodiversity Strategy 1995)
- **Natural community:** a group of organisms living together; some species are found only in specific habitat conditions and in well-defined species associations, whereas others, like wild turkeys, are found in a variety of habitats and in association with a variety of species
- **Patch size:** the size of a particular block of habitat; while wild turkeys can generally thrive in a single large forest patch or many nearby small patches; some other forest species will only be found, or their populations will only persist, in large habitat patches

### *Habitat Project Ideas*

- Plant native trees to complete or widen an existing forest habitat corridor; this is particularly beneficial along rivers/streams (i.e., riparian forest habitat).
- Plant native trees to fill gaps and reduce the fragmentation of larger forest blocks.
- “Soften” forest habitat edges and provide wildlife food by planting sub-canopy trees and native shrubs in the ecotone.
- Implement a prescribed burning program to restore oak-hickory forest, or former prairie or savanna habitat that has been overgrown with trees and shrubs. Consult with MNR District staff or the Natural Heritage Information Centre at MNR to discuss appropriate considerations for implementing a prescribed burning program.
- Plant native prairie in areas where it was historically found across southern Ontario to benefit grassland species and provide nesting and brood rearing habitat for turkeys (a map of known areas of tallgrass prairie and savanna in southern Ontario can be found at [http://www.tallgrassontario.org/TS\\_SAR.htm](http://www.tallgrassontario.org/TS_SAR.htm)).
- If you enjoy wildlife but only have a small acreage you can still do habitat work to benefit wildlife. Consider developing a backyard habitat landscaping plan. Once established, your backyard area will

require less maintenance. If you live in a rural area and landscape using native plants you may benefit wildlife and increase your viewing opportunities.

### *Information Sources, Partnership Opportunities and Potential Funding Sources*

**Strategy 4.3** Develop a list of information sources, and potential partnership opportunities and funding sources for habitat projects. (See Appendix 5)



*Photograph by Alan Blewett*

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## Appendix 1. Tables and Figures.

### Tables

**Table 1.** Data collection methods and indices currently used to monitor wild turkey populations and human dimensions related to turkey hunting in Ontario.

**Table 2.** Wild turkey releases in Ontario by WMU and winter of release.

**Table 3.** Reported hunter harvest of wild turkeys in Ontario by year and WMU.

**Table 4.** Summary of wild turkey season information and harvests in Ontario 1987 – 2007.

### Figures

**Figure 1.** Approximate historic range of eastern wild turkeys in Ontario, also showing extent of Mixedwood Plains and Boreal Shield ecozones in southern Ontario (turkey range based on Alison 1976; and Savage and Sadler, unpublished data).

**Figure 2.** Wild turkey release decision tree for Ontario (modified from Bellamy and Pollard 2007).

**Figure 3.** Approximate breeding range of eastern wild turkeys in Ontario, 2007.

**Figure 4.** Approximate range of the eastern wild turkey in Ontario in 1993.

**Table 1.** Data collection methods and indices currently used to monitor wild turkey populations and human dimensions related to turkey hunting in Ontario

Data Collection Method	Population Indices	Biological Indices	Human Dimensions and Hunt Information
Mandatory harvest reporting	<ul style="list-style-type: none"> <li>• Total harvest</li> <li>• Harvest by WMU</li> <li>• Success rate (by hunters and licences sold)</li> <li>• Harvest per habitat area by WMU</li> <li>• Harvest per hunter effort by WMU (for first birds only)</li> </ul>	<ul style="list-style-type: none"> <li>• Total and % hens in harvest</li> <li>• % jakes in harvest</li> <li>• Gobbler age structure (from spur length)</li> </ul>	<ul style="list-style-type: none"> <li>• Time of harvest (morning or afternoon)</li> </ul>
Turkey hunter mail survey	<ul style="list-style-type: none"> <li>• Estimate of non-reporting rate from harvest reporting</li> <li>• Number of turkeys observed while hunting</li> </ul>		<ul style="list-style-type: none"> <li>• Firearms used</li> <li>• Harvest by firearm used</li> <li>• Years of turkey hunting experience</li> <li>• Type of land hunted</li> <li>• Hunt safety</li> <li>• Hunt experience (quality)</li> <li>• Money spent turkey hunting</li> </ul>
Turkey sightings by deer hunters	<ul style="list-style-type: none"> <li>• Number of turkeys seen per 1000 hunter days by WMU (projected)</li> <li>• Number of hunters seeing 1 or more turkeys by WMU (projected)</li> </ul>		

**Table 2.** Wild turkey releases in Ontario by WMU and winter of release

WMU	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04	2004-05
42																36	13					
45																					65	20
48																			14			
55B																			35	37		
56																			17			
58																				38		
59														30		18	43	72	84			
60																	16	14	34	18		
61																						
62																	35	37	29	5		
63																	17					
64												23	4			17	35	18		22		9
65											23		5	21		22	34	39	5			
66A														23		18	17					
67								9			11		22			15				21		
68		26													21		18	20		17		
69															5	25	17	35				
70						12	13					4	17				17					
71	47	23																				
72					9		8								18							
73				23		22					14						17	18	17			
74											23					18		14	52	18		
75													26		17	10	11	34	29	50		
76						10	30	17	16	8	19	14		21			15					
77			35		12	13			24	5	18	6	3									
78					10		20			15							44	48	33			
79										5	13			29	9	17						
80											3			25		16	34	37	17			
81					14	10						2		2						16		
82										14	12	2			13	11	68	16	30	18		3
83														29	7	15		16	16		28	16
84												3	28	13		17	17	35	28	8		
85								14	3	27	10	10	7	15		12	34		29	9		
86																20		54	15	8		
87			31			3			3		18		4			17						
88			33																			
89				1		29	9									17	7	9	31			
90	27	14	15	7	37	5	36			8		2					17	18	23			
91														42	19	17		18	15			15
92							5	31	81	5							32	58	45			

**Table 2**, continued. Wild turkey releases in Ontario by WMU and winter of release

WMU	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04	2004-05
93										15	26	16	3				49	18	31			
94															17		16	17	2		39	10
95																			25			
<b>Total</b>	<b>74</b>	<b>63</b>	<b>114</b>	<b>31</b>	<b>82</b>	<b>104</b>	<b>121</b>	<b>48</b>	<b>147</b>	<b>78</b>	<b>207</b>	<b>82</b>	<b>122</b>	<b>242</b>	<b>141</b>	<b>338</b>	<b>607</b>	<b>617</b>	<b>598</b>	<b>335</b>	<b>168</b>	<b>58</b>

**Table 3.** Reported hunter harvest of wild turkeys in Ontario by year and WMU

WMU	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002 <sup>a</sup>	2003	2004	2005	2006	2007	
48																			5	9	19	
55B																	2		19	32	27	
58																			9	10	29	
59															4	25	53	67	105	144	168	
60														4	5	34	16	42	54	88	116	
61																2	9	14	16	20	25	
62																4	44	42	37	47	39	
63														2	27	36	43	60	67	84	92	
64														40	41	85	94	147	208	260	282	
65														4	54	82	152	133	189	236	364	
66A								3	1		3	1		59	90	162	155	207	214	227	198	
67												1	177	143	251	297	350	420	430	410	343	
68	20	25	40	61	79	108	91	104	89	88	79	110	185	177	179	220	255	293	262	296	238	
69														2	23	41	32	64	83	80	90	
70										11	16	45	55	90	75	87	148	173	200	172	172	
71	45	46	37	62	97	100	61	88	79	77	56	83	119	125	153	181	161	208	186	175	131	
72				6	12	29	48	35	26	25	14	41	32	102	79	86	128	201	182	186	147	
73				8	22	30	36	24	13	9	27	20	61	83	128	185	354	450	511	524	496	
74														2	1	2	8	22	36	44	68	91
75													9	16	50	51	49	67	110	112	155	
76							100	75	115	105	140	261	225	344	372	443	671	825	842	858	677	
77							46	40	39	53	46	70	88	134	131	192	301	356	471	459	321	
78								14	21	22	28	93	115	109	144	186	268	414	452	519	475	
79														3	3	5	14	9	22	38	40	
80																						
81							31	21	23	29	28	46	170	200	258	341	312	411	486	487	338	
82														87	122	189	274	440	553	719	773	704
83A														60	62	34	<sup>b</sup>	1	5	14	28	
84							3		1		7	9		77	75	177	169	195	278	372	315	
85												17	22	38	57	83	104	124	184	206	273	
86																	39	68	92	132	130	
87			9	11	10	11	24	18	24	22	29	31	39	59	56	65	130	134	149	202	202	
88							10	7	11	10	14	26	29	27	30	45	54	35	30	49	38	
89							29	37	62	75	95	116	132	116	182	180	268	326	320	407	397	
90							71	78	42	105	121	224	241	270	394	461	716	923	869	856	828	
91								6	8	8	12	26	23	68	52	73	97	145	187	235	202	
92							4	13	15	34	27	38	44	89	206	280	406	519	623	703	738	

<sup>a</sup> The number of birds checked in 2002 may not be complete due to a public service labour dispute which affected environmental activities.

<sup>b</sup> A boundary change in unit 83 in 2003 transferred the 2 townships where birds had been harvested in 2000-02 to neighbouring units.

<sup>c</sup> Large increase in unit 94 in 2007 resulted from WMU 94A being opened for the first time.

**Table 3, continued.** Reported hunter harvest of wild turkeys in Ontario by year and WMU

WMU	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002 <sup>a</sup>	2003	2004	2005	2006	2007
93											7	18	51	52	76	167	241	394	372	442	385
94											1					1	10	29	24	36	102 <sup>c</sup>
95																		27	37	59	64
Unk.								1			1			6	1	8	20	8	36	92	
<b>Total</b>	<b>65</b>	<b>71</b>	<b>86</b>	<b>148</b>	<b>220</b>	<b>278</b>	<b>554</b>	<b>564</b>	<b>569</b>	<b>673</b>	<b>751</b>	<b>1276</b>	<b>1927</b>	<b>2658</b>	<b>3493</b>	<b>4655</b>	<b>6436</b>	<b>8245</b>	<b>9278</b>	<b>10341</b>	<b>9766</b>
<b>2nd Birds</b>												<b>125</b>	<b>265</b>	<b>369</b>	<b>580</b>	<b>373</b>	<b>848</b>	<b>1320</b>	<b>1548</b>	<b>1820</b>	<b>1679</b>

<sup>a</sup> The number of birds checked in 2002 may not be complete due to a public service labour dispute which affected environmental activities.

<sup>b</sup> A boundary change in unit 83 in 2003 transferred the 2 townships where birds had been harvested in 2000-02 to neighbouring units.

<sup>c</sup> Large increase in unit 94 in 2007 resulted from WMU 94A being opened for the first time.

**Table 4.** Summary of wild turkey season information and harvests in Ontario 1987 – 2007

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Season dates	May 4-9 May 11-16	May 2-7 May 9-14	May 1-6 May 8-13	April 30-May 5 May 7-12	April 29- May 17	April 27- May 15	April 27- May 15	May 2-20	May 1-19	April 27- May 17	April 25- May 16
Season length (days)	12 <sup>a</sup>	12 <sup>a</sup>	12 <sup>a</sup>	12 <sup>a</sup>	19	19	19	19	19	21	22
Controlled hunter numbers? <sup>b</sup>	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No
Education certificates	872	383	882	1053	1547	2038	1840	1704	1863	2025	1921
Hunters	1000	754	1466	2008	2153	2497	2800	3708	3831	4201	5158
Licences sold	1000	754	1466	2008	2153	2497	2800	3708	3831	4201	5158
Birds harvested	65	71	124	212	340	416	561	564	631	673	751
Success rate (%) <sup>c</sup>	6.5	9.4	8.5	10.6	15.8	16.7	20.0	15.2	16.5	16.0	14.6
% jakes in harvest	42	41	43	47	33	44	36	40	41	43	40
% harvest in PM	-	-	-	-	-	-	-	-	-	-	-
Total estimated \$ spent per hunter in Ontario	\$253	\$197	\$185	\$172	\$146	\$98	\$118	\$196	\$212		
Total estimated \$ spent in Ontario	\$107,458	\$80,561	\$158,298	\$190,702	\$262,804	\$222,013	\$300,588				

<sup>a</sup> A maximum of 6 days/hunter was allowed.

<sup>b</sup> Tags available: 1987 - 1000, 1988 - 1200, 1989 - 2600, 1990 - 4000.

<sup>c</sup> Percent success calculated as birds harvested / total licences sold.

**Table 4**, continued. Summary of wild turkey season information and harvests in Ontario 1987 – 2007

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Season dates	April 25- May 15	April 27- May 15	April 25-May 31 (except when April 25 fell on a weekend)							
Season length (days)	21	19	37	37	37	37	36	37	37	37
Controlled hunter numbers?	No	No	No	No	No	No	No	No	No	No
Education certificates	2360	3414	4411	5998	7063	7223	7741	7967	7292	8714
Hunters	5885	8098	11030	13799	15362	21048	24717	29206	31909	35271
Licences sold	6504	9304	12685	16313	18508	25716	30329	35971	39856	43170
Birds harvested	1317	1934	2659	3496	4692	6436	8245	9278	10341	9766
Success rate (%) <sup>c</sup>	20.2	20.8	21.0	21.4	25.4	25.0	27.2	25.8	25.9	22.6
% jakes in harvest	47	54	54	52	57	49	52	38	46	38
% harvest in PM	-	-	-	-	-	-	-	16	16	20
Total estimated \$ spent per hunter in Ontario	\$216	\$170			\$361	\$397				
Total estimated \$ spent in Ontario		\$1.8 M			\$5.1 M	\$8.2 M				

<sup>a</sup> A maximum of 6 days/hunter was allowed.

<sup>b</sup> Tags available: 1987 - 1000, 1988 - 1200, 1989 - 2600, 1990 - 4000.

<sup>c</sup> Percent success calculated as birds harvested / total licences sold.

**Figure 1.** Approximate historic range of eastern wild turkeys in Ontario, also showing extent of Mixedwood Plains and Boreal Shield ecozones in southern Ontario (turkey range based on Alison 1976; and Savage and Sadler, unpublished data).



**Figure 2.** Wild turkey release decision tree for Ontario (modified from Bellamy and Pollard 2007).

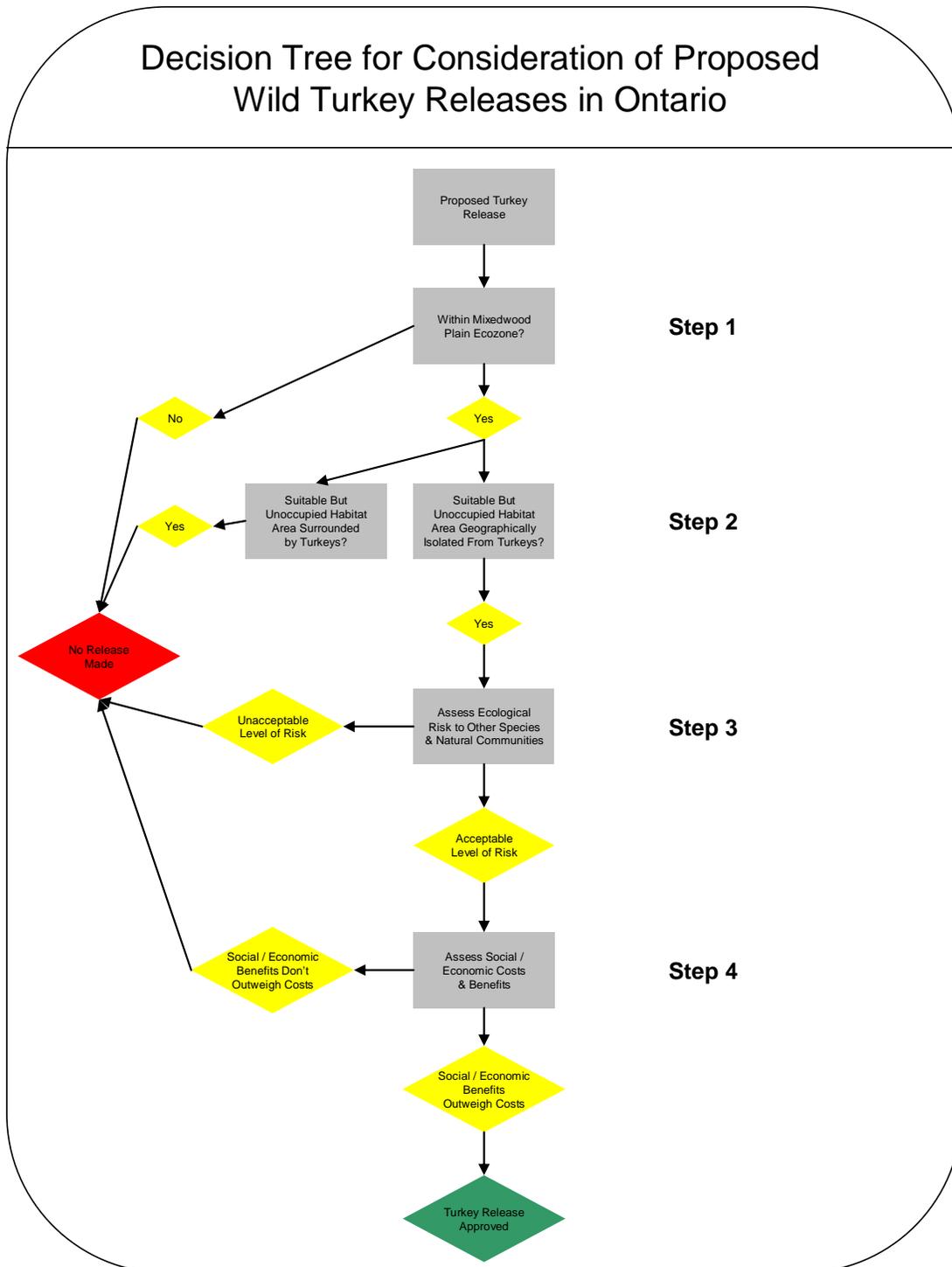
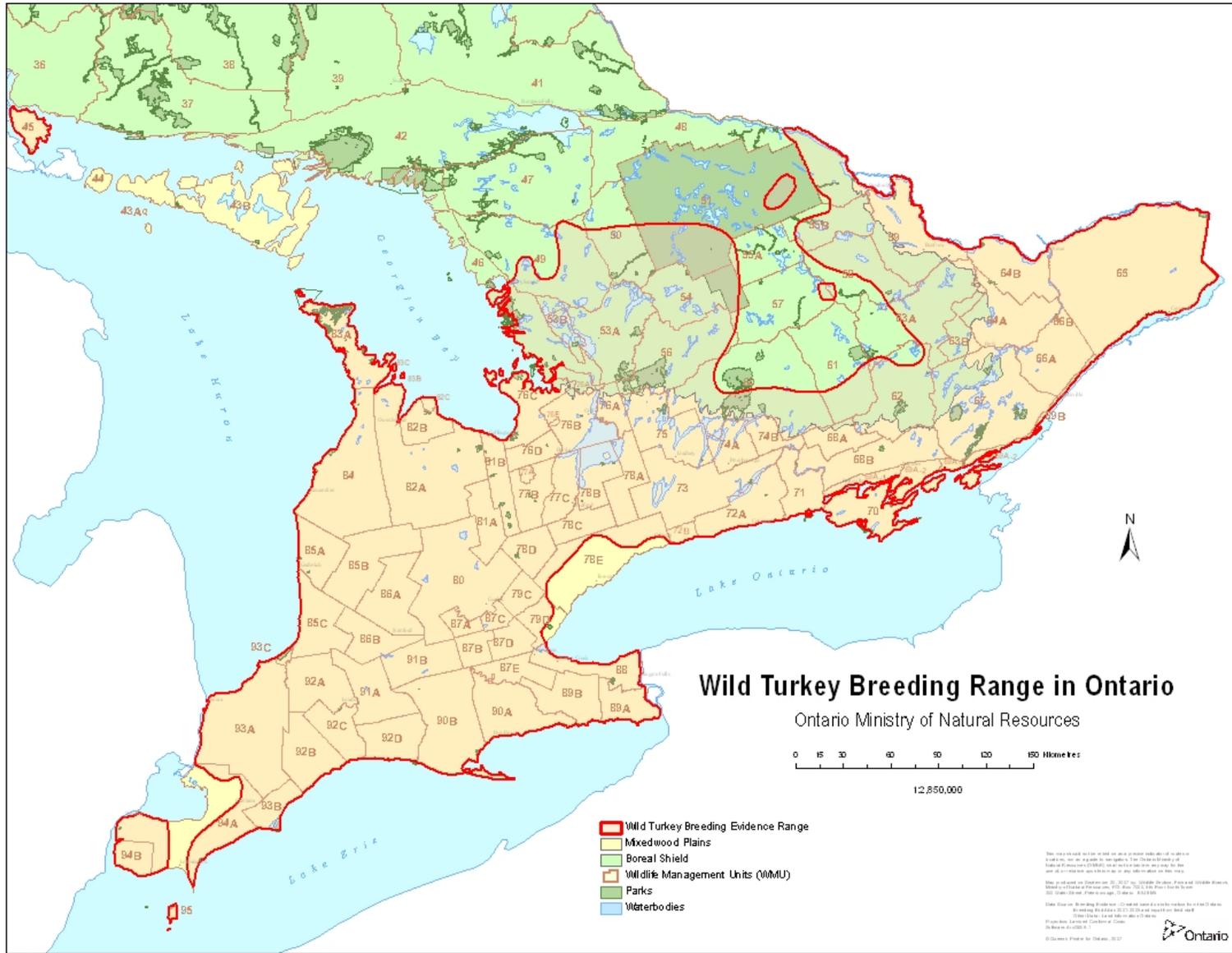
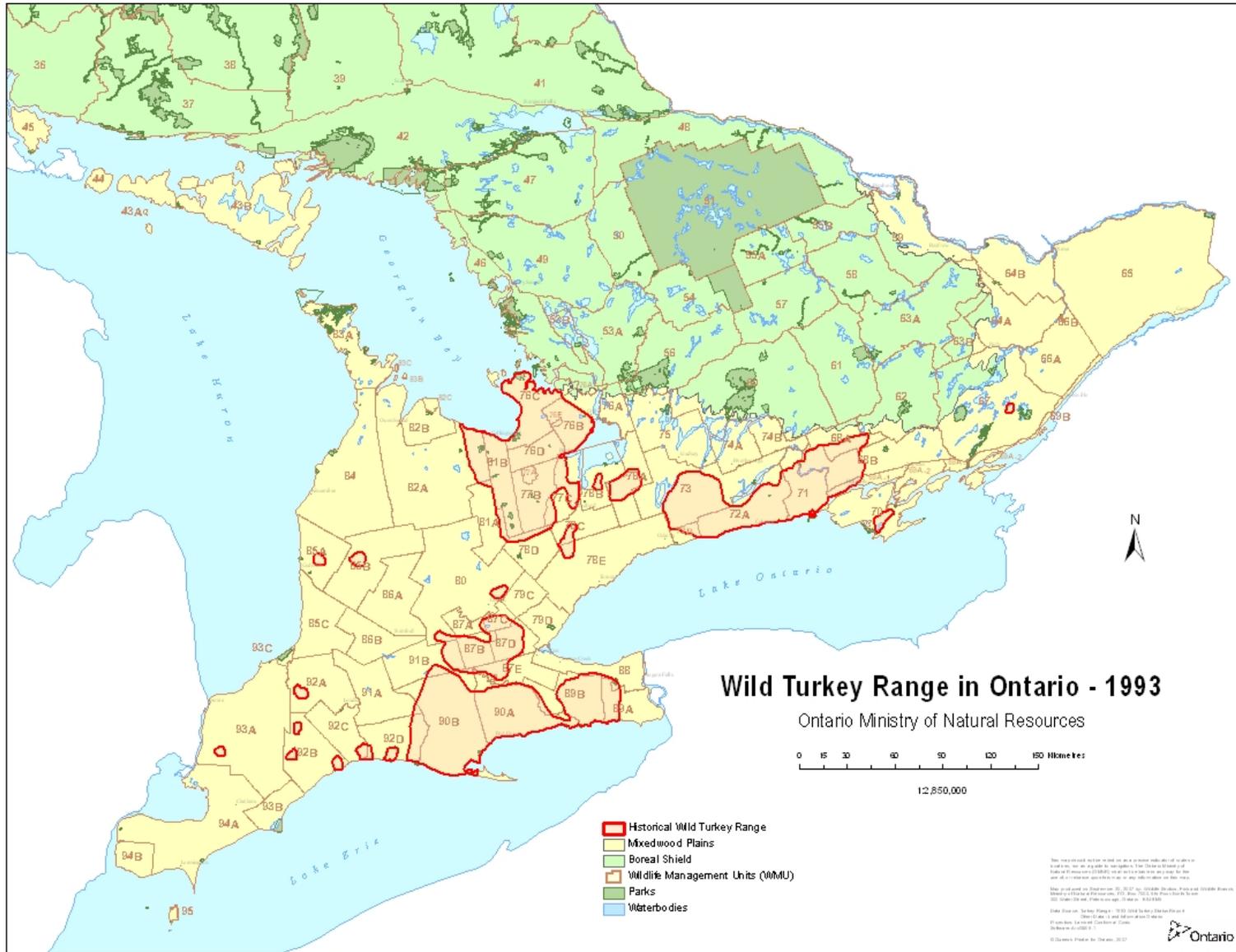


Figure 3. Approximate breeding range of eastern wild turkeys in Ontario, 2007.



**Figure 4.** Approximate range of the eastern wild turkey in Ontario in 1993.



## Appendix 2. Turkey Program History

### *Historic Range, Extirpation, and Reintroduction*

The eastern wild turkey was historically common in parts of southern Ontario. It was reported north to Lake Simcoe and eastward between Toronto and Trenton (Figure 1). The northern extent of the turkey's ancestral range in Ontario probably fluctuated depending on winter conditions. The species was extirpated from the province by 1909 (Alison 1976) resulting from unregulated hunting and the loss of native forests in southern Ontario that were cleared for agriculture. No laws governed hunting of game in the late 1800s, and wild turkeys and other wildlife were sought for food and commercial sale in large cities.

Early attempts to restore turkeys to Ontario using pen-raised birds began before 1950 (Williams 1986). At best these attempts realized only short-term successes with the birds eventually disappearing. Similar attempts and failures were common in the United States until agencies began stocking with wild trapped birds. The experience of other agencies was also showing that wild turkeys were adaptable to a wider range of habitat conditions than originally thought and could persist in human-altered landscapes.

The idea of reintroducing wild turkeys to Ontario was raised again in the early 1980s in a paper entitled *Feasibility of Reintroducing Wild Turkeys into Ontario* (Prevett 1983). The Ministry of Natural Resources (MNR) supported the initiative and formed the Wild Turkey Reintroduction Steering Committee that same year to oversee planning. The committee included representatives from MNR, Federation of Ontario Naturalists and OFAH.



*In March 1984, the first wild turkey was released back into Ontario at Backus Woods in Norfolk County. This cairn, dedicated in January 2002, commemorates the successful restoration of the Eastern Wild Turkey in Ontario.*

Plans for a reintroduction program were accelerated in late 1983 when Michigan contacted Ontario and offered to provide wild turkeys in exchange for moose. There were concerns, however, about the genetic quality of the Michigan birds because they originated partially from pen-raised stock (Wilson and Lewis 1959). To test the fitness of the Michigan birds, they were placed near the eastern edge of the historic range rather than in optimal habitat in the core. Efforts were simultaneously made to obtain a proven successful stock in the U.S. for release in high quality habitat at a site in the core of the historic range. Missouri was contacted and agreed to supply wild turkeys in exchange for river otters. The first Eastern wild turkeys to return to Ontario were 27 Missouri birds, which were released in the Big Creek Drainage area in MNR's former Simcoe District in March 1984. Later that month 47 turkeys from Michigan were released in MNR's former Napanee District.

From 1984 to 1987, Ontario received 274 eastern wild turkeys from Missouri, Iowa, Michigan, New York, Vermont and New Jersey. The birds were released in MNR's former Simcoe, Napanee, Niagara, Cambridge, Midhurst and Lindsay districts. Later in the program additional birds were received from Michigan, New York, and Tennessee to

accelerate restoration. In related multiple exchanges, Ontario provided moose to Michigan, river otters to Missouri and Nebraska, and gray partridge to New York. The Wild Turkey Reintroduction Steering Committee functioned until 1986, when its mandate of initiating the re-establishment of wild turkeys in Ontario was fulfilled. In the same year, a wild turkey management workshop was held in Peterborough that included presentations from the MNR, OFAH, NWTF and the states of Iowa, Missouri, Vermont, New York, Michigan and Pennsylvania. This meeting helped identify next steps for Ontario's wild turkey program.

In 1987 the Ontario Wild Turkey Working Group (WTWG) was formed as an offshoot of the original Wild Turkey Steering Committee to implement the recommendations of the turkey workshop. The WTWG led the program forward by providing technical expertise and recommendations to Wildlife Section in MNR for the management of turkeys in the province.

*In the winter of 1986-87, the trap and transfer of established Ontario wild turkeys into new areas was initiated. A number of general guidelines were developed to direct the efforts;*

- To ensure genetic diversity, releases typically included birds from two or more original sources, particularly the Missouri and New York strains. Turkeys that originated from Michigan stock were not transplanted to other sites.
- Stocking plans were to consider numbers of adults versus juveniles, hen to gobbler ratios, number of birds per stocking site, and number of years birds would be released at a site.
- At least three separate releases were recommended in each Wildlife Management Unit (WMU) with suitable habitat.
- Suitable habitat was broadly defined as a landscape containing between 10% and 85% forest cover interspersed with agriculture. The minimum habitat patch area for releases was to be >200 km<sup>2</sup> to ensure that a minimum viable population size could be maintained.
- Release sites were to be geographically distinct from existing populations (at least 10 km away) to avoid unnecessary releases.

All birds brought into the province from the U.S. were disease tested and certified by the Canadian Food Inspection Agency at the border. The examination by USDA-approved veterinarians included a physical examination, and disease testing for *Salmonella gallinarum*, *Salmonella pullorum*, *Mycoplasma gallisepticum* and *Pasteurella multocida* (avian cholera). In addition, from 1987-1991, 363 wild turkeys that were captured and moved within Ontario were tested for the same diseases. None of the birds released in Ontario tested positive for the screened diseases nor has there been any evidence of disease transmission between Ontario's wild flock and the domestic poultry industry.

The Ontario wild turkey trap and transfer program was very successful and resulted in a rapid expansion of the number and range of the birds. Land use change (i.e., agricultural expansion and forest clearing) and climatic moderation made some areas of the province suitable for turkeys that were not historically inhabited. Conversely, the intensification of agriculture (i.e., removal of natural habitat, large field size, etc.) in some parts of southern Ontario prevented the birds from uniformly filling the entire landscape of their former range. In total, approximately 4,400 wild turkeys were released at 275 sites across the province as part of the release program (Table 2). From 2003-2005, Ontario was also able to provide wild turkeys to Quebec to support their release effort.

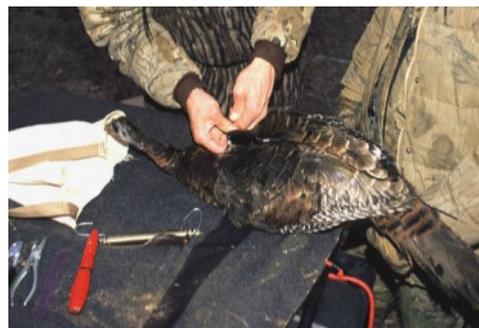
### *Management History in Ontario*

The first Ontario wild turkey management plan was published in 1985 and focused primarily on the reintroduction program, but also included preliminary recommendations for monitoring and hunting the birds. The objectives of the 1985 plan were:

1. To re-establish wild turkeys as part of Ontario's natural heritage.
2. To provide for viewing and hunting opportunities as wild turkey populations become established.
3. To increase economic benefits through additional recreational opportunities provided by wild turkeys.

The plan provided specific guidance for release sites and source stock. Early guidelines were provided for trap and transfer of birds within Ontario and the plan also identified the need to develop a population monitoring protocol and hunting season criteria. Habitat advice focused on recommendations to provide winter food and cover.

By the winter of 1993-1994, just over 1,000 wild turkeys had been released in Ontario, and the birds had been re-established in three general areas of southern Ontario with a number of small disjunct populations at recent release sites (Figure 4). The release program had been very successful and the birds were providing increasing recreational opportunities to wildlife watchers and hunters. However, large areas of suitable habitat within the known historic range of the bird were still unoccupied and therefore the release program was still the primary focus of management efforts.



*Attaching a radio-transmitter to a wild turkey hen for research on populations.*

The 1994 Wild Turkey Management Plan for Ontario was developed cooperatively by MNR and OFAH and had as priorities increasing wild turkey range, optimizing populations and recreational/economic benefits. The goal of the plan was:

*to contribute to the diversity and health of ecosystems and associated wildlife populations and habitats by sustaining and increasing Ontario's wild turkey population for the benefit of the people*

The plan objectives were as follows:

1. Establish wild turkey populations in all suitable habitats.
2. Preserve and manage a diversity of habitats to sustain optimum wild turkey populations.
3. Provide optimum social, cultural and economic benefits from wild turkeys.

The 1994 wild turkey plan was the start of a much accelerated release program that completed restoration of wild turkeys to the known historic range of the bird in Ontario. Monitoring efforts documented the expansion of turkey populations in the province which

aided in prioritizing future release sites. It was also increasingly important to monitor populations using indices based on deer hunter sightings and spring turkey hunt results to ensure sustainability.

The habitat component of the plan recommended an ecosystem approach to habitat development for turkeys by considering the needs of other species, and suggested education was necessary to inform landowners and managers on the habitat needs of turkeys.

The third objective of the plan focused on public education and awareness regarding various aspects of the program, increasing hunting opportunities, and promoting research and enforcement where needed. The 1994 plan required significant funding support which was met by the plan partners and other non-government organizations, including NWTF.

### *Turkey Hunting in Ontario*

The first legal hunt for wild turkeys in Ontario occurred during the spring of 1987 in WMUs 68 and 71 (Table 3). Hunter numbers were controlled and WMU-specific tags were allocated through a random draw. Seasons were initially split into two one-week sessions and daily hunting hours were one-half hour before sunrise to noon. The bag limit was one bearded wild turkey and hunters were required to register their harvested bird at a check station. Since the spring hunt was initiated, all wild turkey hunters in Ontario have been required to attend a one day, wild turkey hunter education seminar and pass a wild turkey hunter examination before being eligible to hunt.

Hunting opportunities increased and regulations became less restrictive as wild turkey populations began to increase;

- In 1991, the hunt in most areas was changed to a “regular hunt”, which included a continuous 19 day open season with a slightly earlier opening (April 29). Hunter numbers were not controlled, but hunters were restricted to hunting in a single WMU of their choice. Only Niagara District retained controlled hunts in two WMUs.
- Since 1991, non-residents have also been able to hunt wild turkeys in Ontario.
- In 1992, all areas became part of the regular hunt system. Hunter densities in most areas appear to be limited by access to private land.
- The use of decoys was first permitted in 1992. The use of live decoys, electronic calls and baiting for the purpose of hunting wild turkeys was prohibited in 1999.
- The one bird seasonal bag limit was increased to two birds in 1998, and the two bird limit was restricted in 1999 such that only one bird could be taken on a given day.
- Since 2000 the spring turkey season has run from April 25 to May 31, unless April 25 falls on a weekend, in which case the season opens on the following Monday.
- In 2005, spring turkey hunting hours were lengthened to one-half hour before sunrise to 7:00 p.m. The number of units open to spring turkey hunting has continued to increase as the population has expanded its range.
- For spring 2007, the system of wild turkey check stations was replaced by mandatory reporting of harvested birds by telephone.

### *Population and Hunting Season Monitoring*

Despite their large size and social behaviour, wild turkeys are a difficult bird to get a direct estimate or count of population size for large areas (Healy and Powell 1999). Most management agencies rely on various indirect methods to monitor turkey population trends. In Ontario, turkey populations are monitored primarily using three general methods:

- turkey harvest monitoring using data collected at check stations and more recently by telephone;
- turkey sightings reported by deer hunters; and,
- an annual turkey hunter mail survey.

Important indices for monitoring populations in Ontario include trends in turkey harvest and hunter success, and trends in turkey sightings by deer hunters, specifically the number of turkeys seen per 1000 hunter days and number (or percentage) of hunters seeing one or more turkeys (see also Table 1). Turkey harvest and deer hunter sighting indices provide independent estimates of turkey population trends, and the turkey mail survey is used to validate or correct data gathered through turkey harvest reporting. Additional information, including biological characteristics of birds harvested (e.g., beard length, spur length, age and gender), is collected that allows monitoring of specific attributes of turkey populations, harvest and hunt safety.

Hunter numbers, licenses sold, and harvest have increased steadily since the first spring turkey hunt in 1987 (Table 4). From 2001-2006 hunter numbers and licences sold increased at an average rate of 19% and 20%, respectively. Hunter success rates increased initially and stabilized around 15% success for several years before increasing again in the late 1990s to around 20% and again after 2001 to around 25%. Increases in hunter success are attributed to increased hunter experience, and turkeys increasing in number and expanding their range to fill all suitable habitat in open units. Because hunters are allowed to hunt in any open WMU and can move between WMUs it is not possible to estimate hunter success by WMU.

Spring turkey harvest had been increasing at an average annual rate of 25% in recent years before declining slightly in 2007 (Table 4). Inspection of harvest by WMU shows that while harvest continues to increase in units opened in recent years, harvest in units that have been opened longest has stabilized or declined (Table 3). This is typical of the pattern observed in other jurisdictions following the re-establishment of wild turkey populations. Trends in turkey harvest by WMU are generally supported by similar trends in turkey sightings by deer hunters.

A high percentage of jakes harvested in spring can affect gobbler age structure and potentially the quality of future spring hunts. However, a high percentage of jakes harvested can also indicate good reproductive success during the previous nesting season and/or hunters with no preference for age of bird harvested. Percentage of jakes among males harvested has been relatively high in Ontario, particularly since the late 1990s (Table 4) but has declined since 2004. The range in the observed age ratio of harvested birds is consistent with many other jurisdictions throughout the range of the eastern wild turkey (Kurzejeski and Vangilder 1992). Data collected via harvest reporting on spur length will allow more intensive monitoring of age structure of the turkey population over time.

### *Wild Turkey Research in Ontario*

Research on wild turkeys in Ontario has focused on ecology of released turkeys in different landscapes and turkey diet.

Research was conducted on some of the first wild turkeys released in Ontario in 1984 and 1985 near Walsingham (J.E. Weaver 1989). Sixteen hens and five gobblers were radio-tagged prior to release in 1984 and 11 hens were tagged in 1985. Survival, mortality factors, nesting success, movements, range size, and habitat use were documented in an area considered at the time to have some of the best remaining turkey habitat in Ontario. The released birds experienced low survival and reproductive success during the period of the study. This was partly attributed to stress associated with trapping and transport from the Midwestern United States and release in a novel landscape. However, one additional release of 15 birds was made in the area in 1986 and the remaining birds rapidly adapted. Within five years the wild turkey population in the area was estimated at >1,000 birds.



*Researcher releasing a radio-tagged wild turkey.*

An experimental stocking was made in the Sudbury area early in 1999 into a landscape in the Boreal Shield Ecozone altered by logging and agriculture (Nguyen 2001). Thirty-six wild turkeys were radio-tagged and released in 1999. An additional 13 hens were released in 2000. Radio telemetry work was completed in March of 2001. This study documented extremely low survival of radio-tagged birds attributed directly to predation and indirectly to severe winter conditions. The study also found that reproductive rates for the released birds were

low and recruitment was insufficient to maintain the population. The researchers concluded that while agricultural landscapes at northern latitudes may support turkey populations in mild or average winters, regular severe winters will periodically decimate populations.

Turkey predation on rare snakes was identified as an unknown but possible negative consequence of transfer of wild turkeys to Pelee Island, in the Lake Erie basin. From September 2003 to May 2006, the crop (i.e., food storage organ) from 25 wild turkeys of mixed age and gender were collected for the purpose of assessing the diets. Analyses to date have identified a broad diversity of food items, including grains (e.g., wheat, barley, oats, corn and soybeans), a variety of insects particularly Orthoptera (grasshoppers and crickets) and Coleoptera (beetles), grass seeds and other plant fragments, fruits (e.g., wild grape, hawthorn) and nuts (e.g., acorns). No evidence of herpetofauna has been detected. This study is ongoing.

Blood was drawn from all turkeys released on St. Joseph's Island and banked for future DNA profiling. This initiative was undertaken in order to assess the effects of insularization on genetic variability of turkeys, and to allow comparison of the future relatedness of birds on the island and adjacent mainland relative to the original wild source stock.

### ***Status of the Wild Turkey Population in 2007***

Due to the influences of forestry, agriculture, and milder climatic conditions, the occupied range of wild turkeys in Ontario is now considerably larger than the estimated historic range (Figure 3). The province has experienced several severe winters since turkey populations have been restored and some winter mortality has been documented. However, generally mild winters in recent years have allowed the birds to continue to expand their range northward and increase in number, particularly in areas where the birds have recently become established. MNR derives a very rough estimate of the provincial turkey population based on harvest numbers and assumptions on how much of the provincial population is harvested during the spring season. The 2007 provincial population estimate is 70,000 turkeys and densities of the birds vary across the province based on habitat quality and climate.



*Photograph by Alan Blewett*

### **Appendix 3. Links to publications on human-turkey conflict research & management.**

*Wildlife Crop Damage Manual*

(Ohio Department of Natural Resources)

<http://www.dnr.state.oh.us/Portals/9/pdf/Crop%20Damage%20Manual.pdf>

*Truths and Myths About Wild Turkey*

(Purdue Extension, publication FNR-264-W)

<http://www.ces.purdue.edu/extmedia/FNR/FNR-264-W.pdf>

*Corn and Soybean Crop Depredation by Wildlife*

(Purdue Extension, publication FNR-265-W)

<http://www.ces.purdue.edu/extmedia/FNR/FNR-265-W.pdf>

*Identifying Wildlife Crop Depredation in Corn and Soybean Fields*

(Purdue Extension, Powerpoint presentation)

[http://www.agriculture.purdue.edu/fnr/cropdamage/PPT/Web\\_ID\\_CropDamage\\_files/frame.htm](http://www.agriculture.purdue.edu/fnr/cropdamage/PPT/Web_ID_CropDamage_files/frame.htm)

*Wild Turkeys and Agriculture*

(pgs. 15-19 in Wild Turkey Ecology and Management in Wisconsin)

<http://www.dnr.state.wi.us/org/land/wildlife/HUNT/turkey/Section3.pdf>

*Prevention and Control of Wildlife Damage*

(handbook provided in .pdf format courtesy of Internet Center for Wildlife Damage Management)

<http://icwdm.org/handbook/index.asp>

*Wild Turkey and Crops: Identifying Crop Depredation*

(Iowa Department of Natural Resources brochure)

<http://www.iowadnr.com/wildlife/pdfs/turkeybrochure.pdf>

*Strategy for Preventing and Managing Human-Wildlife Conflicts in Ontario*

(Ontario Ministry of Natural Resources)

[http://www.web2.mnr.gov.on.ca/MNR/EBR/human\\_wildlife/strategy.pdf](http://www.web2.mnr.gov.on.ca/MNR/EBR/human_wildlife/strategy.pdf)

**Resources available for purchase:**

*Wildlife CSI: Unraveling the Mysteries of Wildlife Crop Damage*

(Purdue University Extension Publication FNR-266)

Available by phone at 888-398-4636 or on the internet at

[http://www.agriculture.purdue.edu/fnr/cropdamage/video\\_order.htm](http://www.agriculture.purdue.edu/fnr/cropdamage/video_order.htm)

*Identification of WILDLife Crop Depredation*

(Purdue University Extension Publication FNR-267)

Available by phone at 888-398-4636 or on the internet at

[http://www.agriculture.purdue.edu/fnr/cropdamage/guide\\_order.htm](http://www.agriculture.purdue.edu/fnr/cropdamage/guide_order.htm)

**Additional Online resources:**

*Coping With Wildlife Damage*

(Purdue University Extension - webpage)

<http://www.agriculture.purdue.edu/fnr/wildlife/landowners/wildlifedamage.html>

*Internet Center for Wildlife Damage Management*

<http://icwdm.org/>

*Northeast Wildlife Damage Management Cooperative*

<http://wildlifecontrol.info/NEWDMC/Publications.html>

## **Appendix 4. Strategies and techniques to reduce the likelihood of turkey conflicts and to mitigate actual conflict situations when they occur.**

### **1) General strategies to reduce the likelihood of turkey conflicts**

- ***Do not feed wild turkeys***

Artificial feeding makes turkeys more susceptible to disease, predators, illegal hunting, and increases the probability that certain types of conflict situations will develop. Feeding of turkeys at bird feeders can lead to increased interactions with other bird species and increase the potential for disease transmission. If flocks of turkeys begin visiting a feeder, temporary removal of the feeder may be necessary to break this behaviour.

- ***Do not release pen-raised turkeys in areas with wild birds***

While landowners can acquire permits to rear domestic strains of wild turkey, it is illegal to release pen-raised turkeys for hunting or other purposes without written authorization from MNR. Applications to release domestic wild turkeys should only be considered by MNR staff for areas that are well outside of the wild turkey's range in Ontario. Release of pen-reared birds into wild flocks could result in the spread of domestic poultry diseases to wild birds and could also adversely affect the genetics of wild populations. Pen-raised turkeys are also less wary and therefore more aggressive toward humans and pets. Feral pen-raised turkeys can cause significant conflicts in urban areas, and because pen-raised wild-type turkey stock can be difficult to differentiate from truly wild birds, management agencies often have been forced to spend considerable time and money managing issues that developed due to the release/escape of feral pen-raised turkeys.

- ***Allow hunting***

Both spring and fall hunting of turkeys reinforces their general wariness of humans.

- ***Exclusion, Deterrents***

Many of the specific techniques described below as mitigation tools including fencing, auditory deterrents, ultrasound devices, scarecrows, predator decoys, reflecting tape, dogs, etc. may be useful for preventing turkeys from moving into a specific area and/or from feeding on high value crops like berries or ginseng.

- ***Harassment***

The FWCA allows a landowner to harass wild turkeys if damage is occurring or likely imminent.

### **2) General strategies for dealing with conflicts when they occur**

- ***Address conflict situations immediately***

Conflict situations frequently develop after landowners initially welcomed the birds by feeding them or at least not discouraging them. Turkeys that become habituated to a feeding or roosting site are more difficult to discourage later, particularly during the winter.

- ***Be persistent but not predictable***

Early and regular intervention each time the birds appear usually prevents serious conflicts from developing. However, turkeys may acclimate to deterrents that remain in the same location for a long time (e.g., scarecrows) or operate on a regular schedule (e.g., propane cannon).

- ***A combination of techniques is generally most effective***

Multiple harassment methods can be very effective, but sometimes a combination of lethal and non-lethal methods may be required to reduce significant conflicts. If lethal measures are employed, they should be used at the same time as other pyrotechnic / noise deterrents are used, therefore increasing the effectiveness of noise deterrents when used alone.

- ***Lethal control should be considered a last resort but may be used to reinforce other methods***

Lethal control should target adult hens because they often lead flocks and removal of dominant hens may result in the necessary behavioural change to eliminate the conflict. Shooting of just a few birds is usually sufficient to permanently displace a flock. However, landowners should be advised that flocks displaced from feeding sites during extreme winter conditions may experience significant mortality resulting from starvation. Landowners that have concerns should attempt to displace flocks from feeding sites early when winter conditions will allow the birds to move in search of alternative food sources.

- ***Allow hunting***

Both spring and fall hunting of turkeys reinforces their general wariness of humans.

### 3) Specific techniques for mitigating turkey conflicts

- ***Exclusion techniques***

Berry farmers have had success keeping all birds out by constructing complete enclosures of bird netting around their crops. Wild turkeys prefer to walk, rather than fly, into feeding areas such as feeds bunks and silage pits. Temporarily erecting fencing at the entrance, or around feed / grain storage has been successful at excluding turkeys. Exclusion can be cost-effective at protecting relatively small sites (i.e., grain cribs, silage pits, etc.) or high value crops like berries, but is likely too cost-prohibitive for protecting larger areas.

- ***Allow hunting***

While fall turkey hunting isn't a proven method for reducing human-turkey conflicts, it has the potential to reduce localized conflicts. Both spring and fall hunting of birds will also reinforce their general wariness of humans.

- ***Auditory deterrents***

Any loud noise-making device is likely to work if used when turkeys first appear on site. Noise-makers could include a shotgun blast into the air (noise-making shells instead of live ammunition are recommended for safety), starter pistols, firecrackers, screamers, bangers, etc. Some types of noise makers can be particularly effective because they travel some distance and can be fired out and over a flock of birds before they explode with a loud bang. Auditory deterrents are likely to be most effective in areas where turkeys are hunted and therefore may associate loud noise with being shot at. Propane cannons are another type of auditory deterrent that creates a noise louder than a shotgun blast. The cannons can be set to go off randomly but the birds are likely to acclimate to the sound after some time. Purchase and operation of a propane cannon may be cost prohibitive for many landowners, and the regular firing may disturb neighbours for some distance.

- ***Bird distress calls***

These are another type of auditory deterrent, but rather than simply broadcasting a loud noise to scare turkeys a species-specific distress call is played over a speaker to scare the birds. There is some evidence this type of auditory deterrent may be more effective than simple loud-noise deterrents. However, the evidence is based largely on use with other bird species.

- ***Ultrasound devices***

These devices emit sound at a frequency too high to be detectable by humans. While some species can detect sound at ultrasonic frequencies, the aversive response has not been clearly demonstrated.

- ***Scarecrows***

Human effigy scarecrows are commonly used and are most effective when the effigy is realistic and brightly coloured. Recent developments in scarecrow deterrents include scarecrows that

inflate periodically and hunter effigies that are combined with propane cannons or other auditory deterrents. As mentioned above, these types of devices are most effective when moved periodically and combined with other techniques.

- **Predator decoys**

There are a number of different types of predator models including realistic decoys, predator kites, and scare eyes. Generally the more realistic models that incorporate movement will be most effective. Eagle kites flown from 20 ft. or higher have been effective at deterring turkeys from some sites in Ontario but not at others. The number of kites required varies directly with the size of the area to be protected from the birds.

- **Falconry**

Trained raptors have become popular as a bird deterrent in some situations, and have proven effective at deterring many bird species. Falconry is effective enough for some species that the falconry truck or a tethered raptor is enough to keep birds away, and it is only occasionally necessary to put the bird up. There is currently no information regarding their effectiveness on turkeys but larger falconry raptors are expected to deter turkeys in most situations.

- **Reflecting tape**

Reflecting tape may scare birds because it is unfamiliar (i.e., shiny, reflective and makes odd noise when blowing in the wind). It is most effective when the tape is erected at entry points to a field or feeding site. As with other methods, turkeys may habituate to the tape or may not be deterred from a food source under extreme winter conditions if they have no other food available.

- **Lure crops**

Lure crops are crops set aside in one area to keep turkeys from feeding in another area. Some local groups in Ontario have purchased small acreages of standing corn to be left through the winter to provide readily accessible food and prevent birds from moving into feed lots and silage pits, and scratching on hay bales. The overall effectiveness of this approach has not been evaluated, but it has the potential to prevent local conflict situations.

- **Dogs**

With repeated harassment, specially trained herding dogs under the direction of a handler have been effective at chasing Canada geese from parks, golf courses, etc. This level of effort is likely not necessary for turkeys as a farm dog monitoring the area where depredation is occurring should be effective at discouraging the birds. However, herding dogs that will chase the flock without catching birds may provide the best results. Landowners are reminded that dogs are not permitted to run at large in areas usually inhabited by white-tailed deer, moose, elk or black bear.

- **Lasers**

Lasers may be effective as a bird deterrent if the beam is directed at sensitive areas. Lasers may be most effective at night for dispersing roosting turkeys. However, when aimed at areas like the eyes the laser can cause damage. Powerful lasers can actually cause the feathers of a bird to ignite. The limited effectiveness and potential harm that can be caused by lasers limits their usefulness for turkeys.

- **Netting or live trapping**

This technique is only recommended for removal of feral pen-raised turkeys from the wild. Often pen-raised birds cause conflicts near towns or rural homes and can readily be captured in baited walk-in traps or on the roost using landing nets. If the owner of pen-raised stock can be identified, they are legally responsible for recapturing or otherwise dealing with the birds. Turkeys that are known feral pen-raised stock should never be re-released into the wild.

- **Lethal control**

Consistent with the protection of private property provisions in the FWCA a landowner may humanely kill turkeys that are damaging or about to damage their property.

## **Appendix 5. Links to information and funding sources for wildlife habitat work in Ontario.**

Canadian Chestnut Council

<http://www.uoguelph.ca/~chestnut/>

Canadian Wildlife Service, Habitat Stewardship Program for Species at Risk

<http://www.cws-scf.ec.gc.ca/hsp-pih/>

Carolinian Canada

<http://www.carolinian.org/>

Conservation Ontario (network of Ontario Conservation Authorities)

<http://conservation-ontario.on.ca/>

Ducks Unlimited Canada

<http://www.ducks.ca/province/on/index.html>

Environment Canada (Planting the seed, a guide to establishing prairie communities in southern Ontario)

<http://www.on.ec.gc.ca/wildlife/docs/pdf/pts-prairie-e.pdf>

National Wild Turkey Federation

<http://www.nwtf.org/>

Nature Conservancy Canada

[http://www.natureconservancy.ca/site/PageServer?pagename=on\\_ncc\\_work](http://www.natureconservancy.ca/site/PageServer?pagename=on_ncc_work)

Oak Ridges Moraine Foundation

<http://www.moraineforlife.org/index.php>

Ontario Ministry of Natural Resources, Community Fisheries and Wildlife Involvement Program (CFWIP)

<http://www.mnr.gov.on.ca/fishing/cfwip.html>

Ontario Ministry of Natural Resources, Species at Risk Stewardship Fund

<http://www.mnr.gov.on.ca/mnr/speciesatrisk/review.html>

Ontario Nature

<http://www.ontarionature.org/index.php3>

Ontario Society for Ecological Restoration

<http://www.serontario.org/>

Ontario Stewardship

<http://www.ontariostewardship.org/ontarioStewardship/home/osIndex.asp>

Tallgrass Ontario

<http://www.tallgrassontario.org/>

*Tallgrass recovery plan:* <http://tallgrassontario.org/Publications/TallgrassRecoveryPlan.pdf>

The National Land and Water Information Service (Ontario soil maps)

<http://sis.agr.gc.ca/cansis/publications/on/index.html>

Trees Ontario

<http://www.treesontario.on.ca/>

Wildlife Habitat Canada

<http://www.whc.org/>