



Nevada Department of Wildlife

Canada Goose Release Plan

Summary:

This document establishes the Nevada Department of Wildlife's (NDOW) operational plan to translocate Canada geese (*Branta canadensis*) to sites within the state. The content of this plan is influenced by the findings and recommendations contained within NDOW's report entitled *Efficacy of Canada goose translocation efforts in Nevada as a tool to increase the breeding population and to provide for hunter opportunity* (Mortimore, 2008) and much of the following text is derived from that report.

Background:

Continental Canada geese numbers had diminished in the 1960s and 1970s to levels that concerned waterfowl managers. Regulations were invoked that reduced hunting pressure upon these waterfowl. Reduced harvest combined with habitat conservation actions stimulated Canada geese, particularly those of the large-bodied group (Rusch, 1994), to increase to higher population levels. Also contributing to the recovery of these Canada geese were greatly improved agricultural yields and the species' propensity to adapt to new, un-natural nesting substrate, particularly in association with human habitation. By the mid-1990s, managers realized that the overall increase in continental Canada geese numbers also gave rise to escalating populations of those Canada geese that resided and nested mostly within the interior United States (Rusch, 1995; Ankney, 1996). The contemporary definition states, "Canada geese that nest within the lower 48 States in the months of March, April, May or June or reside within the lower 48 States and the District of Columbia in the months of April, May, June, July, or August are considered *resident* Canada geese."

Burgeoning populations of resident Canada geese within America's urban areas have culminated in increasing conflicts with human activities, and concomitant concerns relating to human health and safety (Ankney, 1996). Jurisdictions across the nation have been addressing these concerns by implementing actions to manage resident Canada geese populations. Methods have included hazing, special hunts, destruction of nests and eggs, euthanasia and translocation. Since Canada geese fall under the protection of the Migratory Bird Treaty Act (16 U.S.C 703-711) actions proposed by states or subsidiary governments required review by the U.S. Fish and Wildlife Service (FWS) and the issuance of permits to authorize "take" of these migratory birds. Permits were often difficult to obtain in a timely manner.

The proliferation of urban geese nuisance, depredation and hazard issues called for a less cumbersome approach to problem resolution. In August 2007, the FWS published its final rule allowing for non-federal jurisdictions and airport authorities to more easily implement control measures (Federal Register, 2007). In the Pacific Flyway states, the rule allows for direct take of resident Canada geese, or their nest or eggs without a federal permit under an airport control order or a public health control order. Nuisance and depredation orders still require a federal permit.

Translocation in Nevada

Some control applications are impractical where overabundant geese reside. Most of Nevada's nuisance and public safety concerns are located within urban centers. Special hunts are not recommended due to concerns about firearms discharge in proximity to homes and other human habitation, and the likelihood that the action may foment negative sentiment and opposition from the public. Egg addling has been accomplished on a site-specific basis, but is deemed impractical on broad scale. The recent federal rule now allows homeowners, business owners and others suffering harassment by nesting pairs to destroy the eggs without a permit in order to coerce the pair to vacate the nesting territories. Once again, this method is only practical for site-specific applications. Nevadans can obtain a free permit to destroy Canada geese eggs and nest through NDOW's website at: <http://www.ndow.org/wild/concerns/tips/index.shtm> or directly at: <http://www.fws.gov/permits/mbpermits/GooseEggRegistration.html>

In Nevada, overabundant Canada geese population control measures have been accomplished through two primary actions:

1. Federally permitted lethal take where nuisance and depredation is ongoing: This management action is utilized in Nevada where Canada geese are creating damage to property where the scope of the problem has a specific commercial or economic impact. Geese are killed on site or at a more discrete location either by the complainant and his designee including United States Department of Agriculture's Wildlife Services (WS, in this context referencing the Nevada office) personnel. In Nevada, euthanasia actions have been mostly applied in Clark County. Across the nation euthanasia has been the control method of choice in many urban and metropolitan settings (Gosser, 1997). This is simply a more cost-effective measure than capture and translocation (action #2, below). Unlike Nevada where vast spaces can separate transplant sites from origin sites, many states select euthanasia due to the likelihood that the translocation alternative would only result in establishing a nuisance problem elsewhere. In addition, there is a high potential for adult repatriation to origin sites following translocation, making the effort less cost-effective. Because euthanasia is often carried out under public knowledge involving geese captured in public places it often generates community dissent. In some instances the meat from the geese has been salvaged and provided to local food banks, but labor costs and concerns about food safety have dissuaded governments from regularly implementing this option.

2. Capture and translocation: The Federal Aviation Authority (FAA) and the Reno Cannon (now Reno-Tahoe) International Airport authority issued its concerns about aircraft safety subsequent to a number of incidents where operating airplanes struck geese (Hall & Groninger, 2002). The potential for air and ground strikes at the airport prompted action to remove birds that resided within the airport grounds. Off-airport capture and removal efforts also theoretically reduced the potential for air strikes with those geese that transitioned from roosting and feeding areas within the valley directly within the paths of approaching and departing aircraft. Following a mandate by the FAA, WS established a task force joined by NDOW to address the issue. From this cooperative venture, the annual goose "round-up" was established in 1989. Prior to this date, some geese were captured and released within the Reno-Sparks greater metropolitan area known as the Truckee Meadows (TM) in 1986 and 1987 as the subjects of an NDOW study (Hummell, 1989). Post capture observations revealed the scope of residency among summer-trapped Canada geese. The study endorsed capture and removal as "the best method of control when implemented on an annual basis."

Air Traffic Safety

However, there is only a limited benefit of this capture program in possibly reducing air strikes. Our capture efforts are scheduled for June each year at a time when adults are flightless. This coincides with a time of the year when adult Canada geese numbers are at their nadir within the Truckee Meadows. Thus the capture and translocation program fails to fully address the aviation safety concerns when Canada geese are most abundant during winter migration (Table 1). Of eleven air strikes referenced by Hall and Groninger between 1986 and 1989 at the Reno/Tahoe airport only two occurred at a time of the year when ‘resident’ geese were likely to have been involved.

Nuisance and Human Health Issues

In 1996, the capture program began to include resident geese living along the southeast shore of Lake Tahoe in Nevada. The rationale for collecting these birds was more or less based upon concerns that the geese were creating a nuisance and that their feces were fouling the waters that entered the lake, known for its clarity. Two years later, the program started collecting geese from golf courses in Carson City to assuage nuisance and depredation complaints. Carson City is north of, and actually connected to,

Carson Valley – Nevada’s most productive Canada geese location. A few captures have occurred in Lahontan Valley and Las Vegas Valley as well. Numbers are not significant.

Geese captured in these locales have been translocated to sites throughout the state, most often at state wildlife management areas (Appendix 1). Captured geese were banded with a federal metal band before release and in some years, geese were fitted with high visibility PVC collars to make them more readily identifiable for re-distribution monitoring purposes.

Capture History:

Annual Goose Round-up. In 1989, the goose “round-up” was instituted under the direction of WS, with nearly 20 agencies and entities involved over the years. In the initial years of the program many of the captured goslings were exported to California and Idaho while most adults were banded and released on-site in the TM. Since 1992, to the present day, except for 1993 & 1994, captured geese were translocated to NDOW’s Wayne Kirch (WKWMA) and Key Pittman (KPWMA) Wildlife Management Areas. Canada geese have been captured for translocation from areas in or near Reno, Carson City, and southeast Lake Tahoe, Nevada from 1986 through 2008. Capture locations within these areas included city parks, municipal and private golf courses, and small privately-owned urban and suburban ponds. Small numbers of geese were also captured in Las Vegas Valley (n=163) and Lahontan Valley (n=60) in response to isolated nuisance depredation issues.

Methods. During the first two weeks of June in most years, flightless adults and goslings are herded with boats or by personnel on foot into corral traps where they were briefly held for processing. Birds are aged as local (L) flightless goslings hatched that year or adult birds

Year	January Count	June Count*
1995	10,091	data records inconsistent
1996	8,270	
1997	7,443	
1998	8,905	
1999	22,122	
2000	11,063	520
2001	10,465	760
2002	8,660	data records inconsistent
2003	9,252	
2004	10,286	432
2005	7,722	378
2006	10,363	477
2007	10,994	940
2008	10,563	576
2009	9,826	pending
10-yr. avg:	11,149	583
*June count includes goose and gosling numbers for all capture sites, not just Truckee Meadows. Data provided by WS.		

captured after their hatch year (AHY). In some years, captured geese have been sexed. Mid-stage retention protocols have varied over the years but in most instances geese have been held in a temporary holding facility until all capture attempts had concluded. The total number of days spent to capture a full complement of birds has depended upon the total number of sites visited. Goslings and adults were segregated to minimize trampling loss. Retention periods at the mid-stage holding pens have varied depending upon transportation logistics. Geese have usually been transported in one of NDOW's modified livestock trailers, with adults and goslings separated. Sometimes spatial compartmentalization has been used when transporting large complements in order to reduce instances of trampling. The smallest goslings have been held in captivity for a longer time period (one to three extra weeks) before transport in an attempt to minimize stress during transport. When transported to hot regions of southern Nevada, transport personnel would periodically stop to spray the birds with water for a cooling effect.

All individuals receive an aluminum Federal leg band. In some years, geese have also been fitted with one of two types of auxiliary markers: 1.) white PVC neck collar with black engraved alpha-numeric codes; and 2) green, red or white vinyl patagium marker. These markers were essential for NDOW's study in the years preceding the formalized "round-up" program. These geese were not translocated.

NDOW directed its interests in augmenting existing populations of breeding Canada geese in eastern Nevada pursuant to the management objectives stated within the Pacific Flyway Council's *Management Plan for the Rocky Mountain Population of Western Canada Geese* (RMP). Some complements of geese were translocated to sites in Elko and White Pine Counties in 1993 and 1994, and sporadically since then. As NDOW has come to realize that repatriation rates of adult geese have diminished over time, the Franklin Lake Wildlife Management Area has become a preferred release site for these translocated geese. Unfortunately, this site is not perennially wet.

From 1994 to 2003, some release complements were distributed to Lahontan Valley – sometimes to Stillwater National Wildlife Refuge (SNWR) and to the Carson Lake and Pasture, owned by the Bureau of Reclamation, but soon to become another NDOW wildlife management area. Releases upon the SNWR were discontinued after 1997 by request of the refuge manager.

In 1996 and 1997 NDOW was directed to release birds at the Overton Wildlife Management Area (OWMA) in Clark County. NDOW's biologists were concerned about establishing nuisance and depredation problems since the release site is so close to Las Vegas Valley and Mesquite and geese can fly to both of those locations following the contiguous shoreline of Lake Mead (Saake, 1999). Releases there were discontinued following an analysis that verified these concerns and indicated poor band recovery rates. Releases on OWMA were resurrected in 2001 and continue to the present. The more recent complements have been comprised almost entirely of older goslings.

From 1996 to the present, Washoe Lake received small complements of remaining goslings retained at the holding facilities. These are usually the smallest goslings captured and have been considered to be too small to be translocated when other complements were established.

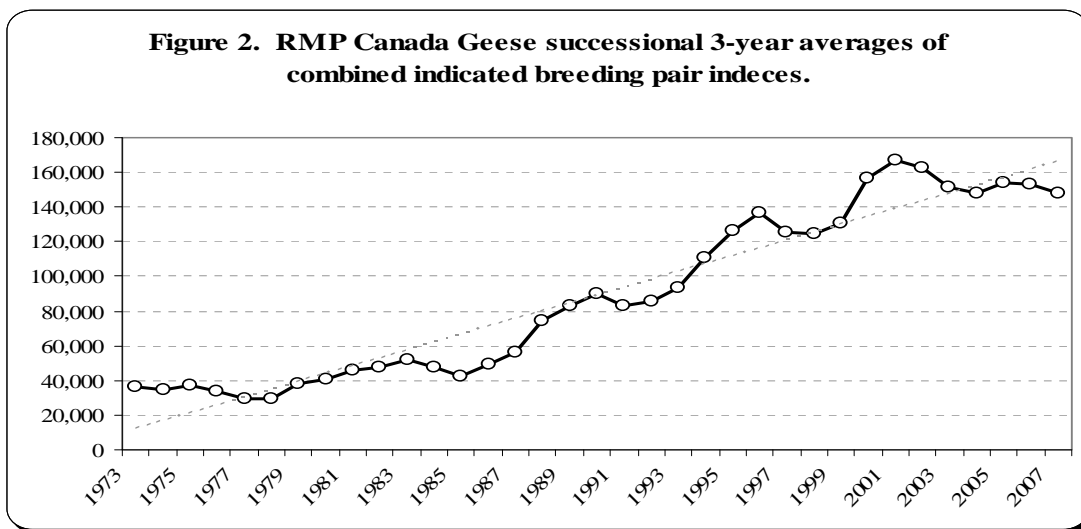
In 1997, it was decided that all geese captured in the TM would be removed regardless of age or previous capture. This is done in an attempt to truly diminish the number of resident Canada geese. The number of following year recaptures has declined.

In 2004, the retention facilities were moved from Spanish Springs Valley to the Mason Valley Wildlife Management Area (MVWMA).

Relationship of NDOW's translocation program to the Pacific Flyway Council's *Management Plan for the Rocky Mountain Population of Western Canada Geese.*

The Pacific Flyway Council (PFC) is a management cooperative involving the eleven western states within the geographic area. The states work with the federal governments of the United States, Canada and México and the provincial governments of Canada to manage the waterfowl resources of the western continent. Management is directed through management plans for species or for populations. The RMP population is one of two recognized populations of western Canada geese (Krohn and Bizeau 1980). The initial plan for the management of this population was conceived in 1983 and has had two revisions since then and is in process for a third revision. The plan's purpose is to establish guidelines to wildlife agencies responsible for RMP Canada geese management. Preparation of the initial plan was stimulated in part by the low Canada geese numbers referenced in the background section of this plan.

Breeding pair indices are used by the flyway to monitor population trends. Presently, RMP Canada geese are flourishing in the Pacific Flyway (figure 2).



The PFC's management plan establishes BPOP index goals by reference area throughout the breeding range of the species. The 2001 plan revision identifies objective BPOP indices for Nevada's Northeastern and Southern reference areas at 700 and 240, respectively. Nevada's BPOP index is attributed to the number of pairs observed during standardized surveys. Currently, the indices for these areas are 417 and 187, respectively. In the Northeastern reference area we observe pairs over wetlands in late March from a fixed wing aircraft. In the Southern reference area, counts are made from the ground by NDOW staff at WKWMA, KPWMA and Pahranaagat NWR (PNWR). Geese had not been surveyed on OWMA since it is considered of marginal value for production. NDOW has begun recording breeding pair information here beginning in 2008.

Table 2 describes cumulative release totals at selected sites in Nevada (from Appendix I). Some sites are not listed since they were isolated occurrences involving small release complements. TM release numbers are highest, but reflect the on-site release policy for most adults from 1989 to 1996. Lahontan Valley has received the most goslings since the inception of the program. Records do not indicate so, but it is speculated that gosling releases at Carson Lake and Stillwater NWR may have been motivated by an expected high rate of survival given the size of the wetlands and a speculated high rate of grafting to migrating Canada geese. Later, when NDOW recognized the opportunity to use translocated geese to attempt to augment the BPOPs in the Northeastern and Southern reference areas, more translocations were devoted to KPWMA and WKWMA. Both the table and the appendix include 2008 data but this latter data is not used in the band recovery analysis.

Table 2. Distribution of translocated CAGO in NV.				
Release Site Site # in parentheses	Adults		Goslings	
	#	% T	#	% T
Truckee Meadows* (1)	2243	42.7%	391	5.9%
Lahontan Valley (5)	710	13.5%	1107	16.6%
OWMA (6)	99	1.9%	997	15.0%
KPWMA (7)	465	8.8%	1024	15.4%
WKWMA (8)	737	14.0%	762	11.5%
Bassett Lk. (9)	89	1.7%	218	3.3%
Franklin Lake (10)	256	4.9%	355	5.3%
Wildhorse Res. (11)	195	3.7%	243	3.7%
Walker Lake (15)	4	0.1%	34	0.5%
MVWMA (17)	165	3.1%	270	4.1%
Washoe Lake (18)	70	1.3%	449	6.8%
California	192	3.7%	588	8.8%
Idaho	31	0.6%	212	3.2%

*includes adults captured and release onsite.

Procedures:

NDOW will continue to participate in the annual "round-up". Procedures for capture, retention and translocation of birds described within the preceding pages will continue to be utilized. NDOW personnel that will be involved in the program are indicated within table 3.

Table 3. Canada geese translocation program – NDOW participants.		
Position	2009 Incumbent	Responsibilities
Migratory Staff Biologist	Craig Mortimore	General oversight Annual release site prioritization Plan maintenance
Western Region – 1205	Kyle Neill	Attend coordination meeting Coordinate capture, retention and translocation Provide habitat assessment for Humboldt WMA, Jessup and other sites in Churchill County Prepare and submit annual project report
Western Region Game Biologists	various	Assist in capture as needed
Seasonal aids	various	Assist in capture as needed
Habitat Division - MVWMA	Pat Kelly, mgr.	Prepare holding facilities for geese retention Feed and water geese as necessary
Habitat Division - WMAs	Pat Kelly - Scripps Gary Branzell – Franklin Lake Dana Johnson - KWMA Ron Mills - KPMA Keith Brose - OWMA	Provide Migratory Staff Biologist with habitat assessment in May each year. Branzell also to provide assessment of Wildhorse Reservoir.

Release site locations are identified within table 4. Additional release sites may be determined in the event that environmental circumstances support the potential for a successful translocation effort. There are a number of wetlands in Churchill County that can support a translocated complement of geese under certain circumstances. These include Indian Lakes, Harmon Reservoir, Sheckler Reservoir and Massie-Mahala Slough.

Table 4. Canada geese release sites in Nevada		
Location	County	Latitude x Longitude
Carson Lake & Pasture	Churchill	39°19' x 118°44'
Jessup (White Plains)		39°54' x 118°47'
Stillwater NWR		39°30' x 118°30'
Other sites TBD		various
Overton WMA	Clark	36°31' x 114°25'
Franklin Lake WMA	Elko	40°21' x 115°22'
Snow Water Lake		40°47' x 114°58'
Wildhorse Reservoir		41°39' x 115°50'
Key Pittman WMA	Lincoln	37°34' x 115°13'
Mason Valley WMA	Lyon	39°05' x 119°07'
Kirch WMA	Nye	38°23' x 115°05'
Humboldt WMA (Toulon)	Pershing	40°02' x 118°37'
Sheldon NWR (Swan & Catnip Resv.)	Washoe	41°49' x 119°29'
Scripps WMA		39°18' x 119°47'

Release Site Priorities:

The following recommendations are excerpted from the efficacy report (Mortimore 2008) and are hereby incorporated into this translocation plan:

- 1.) Prioritize gosling translocation to KPWMA.
- 2.) Prioritize translocation of recaptured adults to Franklin Lake, WKWMA and Wildhorse Reservoir.
- 3.) Discontinue releases of any age classes to OWMA, MVWMA, habitat in Spring Valley and Steptoe Valley.
- 4.) Release goslings at Washoe Lake only if retention and translocation logistics dictate it.

Non-governmental user groups (NGOs) and the general public will be notified through the media prior to capture operations. Media coverage at the capture sites will be coordinated by Wildlife Services. If desired, media coverage at release sites will be coordinated by NDOW's Public Information Officer for the Region where the release occurs.

The translocation report will be posted on NDOW's website within two weeks after the final release of geese has occurred (usually July each year).

Review:

Within the next five years, NDOW will conduct a comprehensive analysis that determines whether or not the program has had a truly addressed the aviation safety and human health and nuisance rationale. This will require the budgeting of sufficient resources to properly analyze the data, followed by a review by the entities originally identified as the 'beneficiaries' of the removal program. Simultaneously, another review of band recoveries will occur to again describe where the translocated birds have been recovered. This could involve the hiring of an outside contractor to give the effort sufficient focus. This would be paid with a funding source to be determined later.

In the event that the above analysis is not completed within five years of the date of this plan, then a review and possible revision of the plan is warranted.

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United States Department of the Interior – U.S. Geological Survey; Patuxent Wildlife Research Center - Bird Banding Laboratory. Laurel MD

APPENDIX 1. CANADA GEESE CAPTURED, Banded AND TRANSLOCATED IN NEVADA (does not include recaptures)

	Truckee Md		Lahon. Vy.		OWMA		KPWMA		KirchWMA		WP Co.		Ruby Vy.		Wildhorse		Walker L.		MVWMA		Washoe L.		CA		ID		TOTALS	
	A	G	A	G	A	G	A	G	A	G	A	G	A	G	A	G	A	G	A	G	A	G	A	G	A	G	A	G
1986	36	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	43
1987	34	90	9	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	81	0	0	0	0	60	208
1988	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1989	659	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	77	139	0	116	736	255
1990	576	154	10	81	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	146	31	96	651	477
1991	180	12	0	0	0	0	0	0	42	62	0	0	0	0	0	0	4	34	0	0	0	0	9	115	0	0	235	223
1992	0	0	0	0	0	0	9	104	11	91	0	0	0	0	0	0	0	0	0	0	0	0	72	188	0	0	92	383
1993	223	0	0	0	0	0	0	0	0	0	0	0	37	277	95	64	0	0	0	36	0	0	0	0	0	0	355	377
1994	241	9	2	111	0	0	0	0	0	0	13	186	0	0	39	179	0	0	0	0	0	0	0	0	0	0	295	485
1995	179	31	15	115	0	0	18	61	19	77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	231	284
1996	74	0	96	367	0	29	0	25	0	46	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	181	467
1997	2	0	41	3	44	59	83	93	18	194	0	0	0	0	0	0	0	0	0	0	0	0	32	0	0	0	188	381
1998	0	0	6	69	0	0	0	49	19	47	11	21	97	19	0	0	0	0	0	0	0	0	58	0	0	0	133	263
1999	1	0	37	81	0	0	0	117	79	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	120	199
2000	0	0	205	0	0	0	8	118	1	127	7	10	0	0	0	0	0	0	0	0	0	0	38	0	0	0	221	293
2001	0	2	130	36	0	50	7	112	48	75	55	1	0	0	0	0	0	0	0	0	0	3	43	0	0	0	243	319
2002	1	0	147	120	0	100	4	155	123	3	0	0	0	0	0	0	0	0	0	0	0	1	55	0	0	0	276	433
2003	37	50	2	65	5	149	64	95	128	11	0	0	0	0	0	0	0	0	0	0	0	8	5	0	0	0	244	375
2004	0	0	0	0	40	117	87	0	58	0	0	0	0	0	0	0	30	19	2	9	0	0	0	0	0	0	217	145
2005	0	0	0	0	7	145	69	0	40	1	0	0	29	0	0	0	32	38	3	27	0	0	0	0	0	0	180	211
2006	0	0	0	0	3	171	57	0	39	3	0	0	42	0	0	0	1	12	0	0	0	0	0	0	0	0	142	186
2007	0	0	0	0	0	30	15	77	81	0	0	0	51	59	0	0	0	0	100	162	25	58	0	0	0	0	272	386
2008	0	0	10	22	0	147	44	18	31	24	0	0	0	0	61	0	0	0	2	3	0	43	0	0	0	0	148	257
T:	2243	391	710	1107	99	997	469	1024	737	762	89	218	256	355	195	243	4	34	165	270	70	449	192	588	31	212	5256	6650
%TAd	42.7%		13.5%		1.9%		8.8%		14.5%		1.7%		4.9%		3.7%		0.1%		3.1%		1.3%		3.7%		0.6%		11,459	
%TG	5.9%		16.5%		15.0%		15.4%		11.6%		3.3%		5.3%		3.7%		0.5%		4.1%		6.8%		8.8%		3.2%			