2007 Annual Report

Forest Health in Alberta

Alberta

Forest Health Vision

A healthy forest environment that provides sustainable fibre resources and a diverse forest ecosystem that supports biodiversity and critical wildlife habitats.

2007 Annual Report

Forest Health in Alberta

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of beetles that included Scolytids, Elaterids, Buprestids and Cerambycids. These specimens are still being identified.

There were no signs of any major, exotic invasive species, such as the emerald ash borer (*Agrilus planipennis*), Asian long-horned beetle, (*Anoplophora glabripennis*), wood wasp (*Sirex noctillio*), sudden oak death (*Phytophthora ramorum*, or banded elm bark beetle (*Scolytus schevyrewi*), occurring in the city in 2007.

Forest Invasive Alien Plants

Provincial

In 2007, SRD conducted a number of Regional/Area projects, as well as projects to support the Alberta Government's inter-departmental and inter-provincial cooperation on invasive species.

The Interdepartmental Invasive Alien Species Working Group (Working Group) further advanced the development of an Invasive Alien Species Management Framework and supporting Risk Assessment Tool (RAT). The draft Framework was distributed to partners for feedback on the proposed process. Generally, there was support for this conceptual system that incorporates the stages of identification, risk assessment, appropriate response, and communication to effectively manage invasive species in Alberta. The next step is for the Working Group, together with its Alberta partners, to determine the roles and responsibilities of agencies and groups within the Framework.

The Working Group is in the final stages of preparing the invasive alien species RAT for use in 2008. Based on feedback received at an expert panel review of the tool held in 2007, the Working Group expanded the socio-economic portion of the assessment and will be improving the tool's calculation function to appropriately score risk. Following the completion of these improvements, the RAT will be converted into a web-based application accessible on-line.

In addition to developing the Framework and the RAT, the Working Group:

- provided an Alberta perspective on the development of federal government and inter-provincial initiatives;
- participated on initial discussions for the development of a provincial pest surveillance system;
- developed the first draft of contents for a Government of Alberta invasive species website;
- collaborated with the Alberta Invasive Plants Council (AIPC) on the development of a number of invasive plant fact sheets (available at www.InvasivePlants.ab.ca); and,
- provided Government of Alberta representation to the AIPC through membership on the board of directors.

Initiatives specific to SRD in 2007 included the initiation of a project to standardize and consolidate invasive plant survey, control and compliance information collected and stored by all program areas with the department. The Geographic Land Information Management & Planning System (GLIMPS) will be expanded to store and report invasive plant data. Although some of the invasive plant functionality within GLIMPS will be rolled out in stages in 2008, it is anticipated that the project will not be completed until the start of the 2009 field season.

In spring 2007, promotional items were produced by the Forest Health Section and provided to the Areas for distribution to public and industry partners. These items included mechanical pencils, sticky notes and magnetic clips. The message on the pencils and pads read "HELP STOP the Spread of Invasive Plants."

In 2007, Forest Health staff in Edmonton consolidated all of the invasive plant survey information collected by the Forest Health program for the years 1998-2007. From this data set, provincial distribution maps of the most common

species were made. These maps (Figures 13-18) are shown at the end of the invasive plants section of this report.

Note: Scientific names of the invasive plant species listed in the regional reports can be found in Appendix III.

Regional

Smoky (NW1)

A forest health officer was dedicated to the weed program in the Smoky Area for the first time in 2007. Priorities for the year were to adopt the Peace Area's management plan to survey and control invasive plants. The weed surveys carried out prior to 2007 were inconsistent with the provincial standards.

Two forest health technicians were hired to complete weed surveys as well as mountain pine beetle work. Throughout the summer six SRD staff assisted in conducting weed surveys as time permitted.

Education, Awareness and Co-operative Initiatives

Invasive plant staff from the Smoky Area attended two workshops, i.e., one held in Rycroft and the Second Annual Northeast Alberta Invasive Plant Spring Workshop held in Athabasca.

With regard to coordinating activities between SRD and Municipalities, discussions with the County of Grande Prairie took place to prioritize and direct SRD surveys. As well, phone conversations occurred with the County of Saddle Hills to learn of trouble spots which they were encountering.

Surveys and Control

In 2007 a total of 191 sites were surveyed.

Frequency of invasive plant occurrences:

Sites with invasive plants	61%
Sites without invasive plants	39%

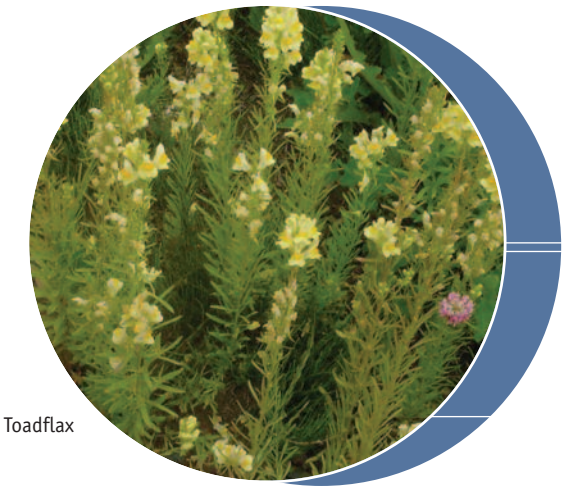
Frequency of species occurrences on sites with invasive plants:

Canada thistle	43%
Scentless chamomile	25%
Perennial sow-thistle	21%
Ox-eye daisy	4%
Tall buttercup	2%
Common tansy	2%
Cleavers	1%
Common toadflax	1%
Bull thistle	1%

Frequency of degree of infestations on sites with invasive plants:

Trace	82%
Low	7%
Moderate	8%
High	3%

Of the area surveyed this year, the highest densities of noxious weeds were located in Ranges 3 – 8, Township 75, west of the 6th Meridian. This area is surrounded by farms and private land.



Toadflax

One hundred three notices were sent to disposition holders. All companies were contacted by phone before notices were sent to confirm contact information and inform them of the sites where weeds were found. Most of these companies were called from mid- to late July and many had already started their weed control program for the season. Companies were asked to reply to the letters to inform SRD of sites that had been controlled.

Eleven scentless chamomile sites were controlled by hand-pulling at the time of the survey. These sites will be revisited in 2008.

Herbicide was applied at two locations to control invasive plants in 2007:

- Revoked Dobbyn Grazing Lease (24/25 – 68 – 5 – W6M)
- Blueberry Trails 79/80 – 8/11 – W6M

The Dobbyn lease is a revoked grazing lease covering approximately 17 hectares. Approximately 5% of the area is infested with Canada thistle. The area encompasses 5 small fields (1 to 8 hectares in size) with several connecting trails. The area has been a challenge to control, in part due to the many ATV trails connecting the fields. Portions of area have been treated with herbicide since 2003. The area was also treated with prescribed fire in 2005 and 2006. The size of the infestation has been continuously reduced. Most of the open areas now have very little Canada thistle with the edges of openings and up to 30 metres into the forest remaining to be controlled.

The Blueberry Trails area covers approximately 8 hectares, 15% of which is moderately infested with Canada thistle. Trace amounts of scentless chamomile and perennial sow-thistle cover over 0.1% of the area. Due to wet conditions and other spray contract commitments, the contractors completed just over half of the infested sites targeted for control. Overall, spray efficacy was good, with only 5% of the Canada thistle not being completely destroyed.

Lesser Slave (NW2)

Two invasive plant surveyors were employed in the Lesser Slave Area this summer; Crystal Ionson and Shawna Lund. Priority areas inspected this summer were the Utikuma and Swan Hills areas.

Education, Awareness and Co-operative Initiatives

Invasive plant materials were distributed throughout the spring and summer to the public and other stakeholders. Materials distributed included: invasive plant calendars, magnetic clips, notepads, pencils, and brochures. The Municipal District of Lesser Slave River was also contacted to obtain weed management pamphlets for distribution.

Both surveyors and Area Forest Health staff attended the 2nd Annual Northeastern Alberta Invasive Plant Spring Workshop in Athabasca.

Surveys and Control

This season parts of the Utikuma and the Swan Hills areas were surveyed.

In 2007 a total of 319 sites were surveyed for invasive plants; all of which were occupied Crown land.

Frequency of invasive plant occurrences:

Sites with invasive plants	74%
Sites without invasive plants	26%

Frequency of species occurrences on sites with invasive plants:

Perennial sow-thistle	44%
Canada thistle	37%
Scentless chamomile	18%
Tall buttercup	1%

Frequency of degree of infestations on sites with invasive plants:

Trace	5%
Low	23%
Moderate	61%
High	11%

SRD sent letters to each company that had noxious weed detected on their disposition(s). The letters detailed the survey results and asked the company to control the infestations by July 15, 2008. Re-inspections will follow.

Re-inspections of infested dispositions noted in 2006 took place in the Utikuma area in 2007. Surveyors noted that even though most of the sites were sprayed and mowed, the populations were the same or worse than in the previous year. During summer 2007, sites were again sprayed and mowed in an attempt to achieve more positive results.

Peace & Upper Hay (NW 3 & 4)

In 2007 three dedicated SRD invasive plant surveyors worked in the Peace and Upper Hay areas. Danny Brown covered the Upper Hay Area, and Hope Klein and Nicolas Martel covered the Peace Area.

Overall conditions in 2007 were very wet. Invasive plant population dynamics appeared to be consistent with other years. Populations continued to grow due to lack of control efforts by stakeholders.

Education, Awareness and Co-operative Initiatives

Limited educational material was distributed. The last of the invasive plant signs was posted in Worsley.

SRD invasive plant program staff participated in two workshops, one in Athabasca and the other in Rycroft (held by the Agricultural Fieldsmen's Association). Meetings were held with the surrounding Municipal Districts (MD) in the Peace Area, but not in the Upper Hay Area due to limited interest in invasive plant surveying or control by the Municipality.

Plans are to initiate some cooperative management programs in the Peace Area in 2008.

Surveys and Control

The locations surveyed in the Peace Area were mostly in the MD of Northern Sunrise County, especially in the Marten River and East Haul Road areas. Some surveys were carried out in the Keg River area.

In the Upper Hay Area, Assumption Hill, the Shekilie area, Negus Creek, and Chinchaga River just north of Paddle Prairie were all surveyed.

Both Peace and Upper Hay areas concentrated on surveying leased land (typically by oil and forestry companies) within the green zone. Typically both areas are exposed to the same invasive plants each year: perennial sow-thistle, Canada thistle, scentless chamomile with some common toadflax and tansy. In 2007, all these species were recorded.

The biggest concern was the lack of treatment of perennial sow-thistle in NW4. It is not treated as an invasive plant, and many companies will control Canada thistle and scentless chamomile, but will leave the perennial sow-thistle.

In 2007 a total of 503 sites were surveyed in the Peace and Upper Hay areas

Percent of Sites surveyed on vacant vs. occupied land:

Vacant	1%
Occupied	99%

Frequency of invasive plant occurrences:

Sites with invasive plants	87%
Sites without invasive plants	13%

Frequency of species occurrences on sites with invasive plants:

Perennial sow-thistle	58%
Canada thistle	22%
Scentless chamomile	19%
Common tansy	<1%
Knawel	<1%
Ox-eye daisy	<1%
Common toadflax	<1%
White cockle	<1%

Frequency of degree of infestations on sites with invasive plants:

Trace	35%
Low	35%
Moderate	24%
High	6%

Of the 503 sites surveyed, 284 of those were re-inspections of previously surveyed sites where the occupant had been notified of invasive plants on the lease. Letters were sent to 214 leaseholders notifying them of invasive plants on their dispositions.

In 2007, SRD contractors treated the following invasive plants with herbicide:

- Upper Hay: 12 hectares of common tansy and perennial sow-thistle

Canada thistle

- Peace: 2.5 hectares of perennial sow-thistle, Canada thistle and scentless chamomile

In the sprayed areas, control efficacy was good; plants did not survive to seed. However, more than half of the locations that were supposed to be controlled were not treated by the contractor. To avoid this in the future, contracted spray crews will be more closely supervised by an SRD employee.

A trial on biological control of scentless chamomile was initiated in 2006 to determine the northern survival and control capabilities of a seed weevil (*Omphalapion hookeri*), and a gall midge (*Rhopalomyia tripleurospermi*).

Four locations were chosen, where scentless chamomile populations were high and dispersed, and human traffic was low or controlled. The insect releases took place in late July 2006 (9 galled plants were transplanted) and early September 2006 (500 weevils were released onto existing plants) at each of the 4 sites.

Site #1 - CNRL Wellsite, MSL 840462, 9-21-80-17-5, 55.94493 -116.58961

At the time of the weevil release (September 2006) the scentless chamomile plants on the release site had not yet gone to seed and the population appeared healthy. New galls had formed on the transplanted scentless chamomile and a single new gall was forming on a neighbouring plant.

On June 29, 2007 the site was inspected for possible signs of gall and weevil survival. The plants were still quite small and there was no sign of galls, but 3 adult weevils were found 5 meters southwest of the release site. On August 2, 2007, the site was inspected and no galls were found. The grass growing among the scentless chamomile in the release site had outgrown the weed and very few chamomile plants were still visible in that 3x3 meter space. However, 3 adult weevils were found within this area.

By our final inspection on August 31, 2007, the chamomile was no longer present at the release site and 11 adult weevils were found south of the release site. No galls were found.

Site #2 - Orlesky's Farm, NW6-101-23-53, 57.73736 - 117.75028

At the time of the weevil release (September 2006) 4 of the transplanted chamomile plants had died. When the galled plants were planted, the ground was very wet and it is possible that some were not completely covered with clay and may have dried out. On the remaining transplanted chamomile, some new galls had formed. No galls had formed on surrounding chamomile.

During the first summer inspection, on June 26, 2007, no galls or weevils were found. The chamomile was close to flower. On August 2, 2007, 17 galls and 2 weevils were found. The galls were present up to 5 meters from the release site. Although the results seemed promising, the landowner had been requested by his Municipal District to control his invasive plant problem immediately using chemical treatments.

Spraying did not take place until after the final inspection (August 30, 2007). An additional 9 galled plants were found, as well as some additional galls on previously counted plants. No weevils were found. A Municipality representative was present and the galled plants were pulled in order for the landowner to meet control requirements.

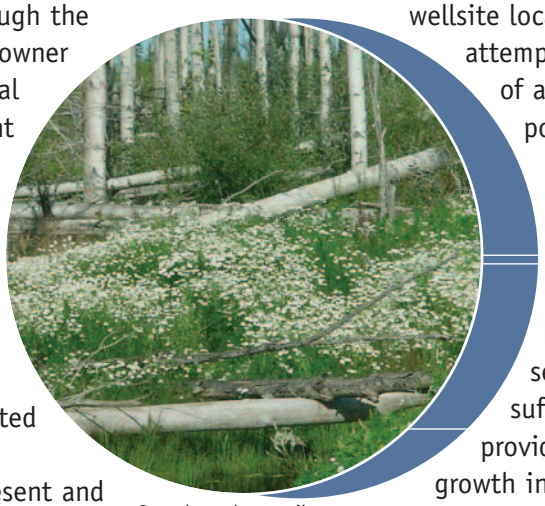
Site #3 - HWY 58, 13-23-110-24-5, 58.57045 - 117.90440

This was the least successful site. There was no evidence of gall or weevil survival one year after release. It was the most northern site and also the most accessible. It is possible that a combination of climate and human interference could have affected the survival of the agents.

Site #4 - Husky Wellsite, 7-14-108-9-6, 58.37437 - 119.37252

At this site, the chamomile population was very hearty and had spread widely in the year since the release. Although no galls were ever located, 3 adult weevils were found during the final inspection on August 23, 2007.

In conclusion, this experiment provided valuable information about the biological control agents' ability to over-winter in a northern climate and their possible affects on virulent chamomile populations. It is probable that the climate past the 108th Township may not be suitable for either agent, but in all the other locations, their presence has the potential to be a detriment to chamomile populations. SRD will continue to monitor both wellsite locations next summer, in an attempt to document more incidences of agent survival and chamomile population decrease.



Scentless chamomile

Lac La Biche & Waterways (NE 1 & 2)

In the Waterways and Lac La Biche areas, the 2007 growing season started generally with sufficient spring moisture to provide vegetation good initial growth indices, especially in the southern portion of the areas. A favourable temperature and moisture regime was followed by a hot and dry July which reduced available moisture considerably. Subsequently, August had somewhat more precipitation than normal and much cooler temperatures. This information was obtained through SRD climate maps and personal communications with SRD staff throughout the areas.

The 2007 weather pattern led to average cereal crop production in the settled areas of the region, with the bulk being there but not the weight (personal communication with local farmers). This generality may also be applied to the growth of noxious weeds within the region, with deep rooted species such as common tansy and Canada thistle benefiting from the overall drier conditions. The other more shallow-rooted noxious weeds present in the area appeared to have had an "average" production season.

Primary SRD staff involved with the 2007 Waterways/Lac La Biche Weed Program were Martin Robillard, Aleksandra Holod and Carliegh Brown, working under the supervision of Tom Hutchison (Forest Health Officer, Waterways/Lac La Biche Area). Technical assistance was provided by various SRD staff throughout the region.

The program priorities were consistent with previous years: Any unoccupied crown land within the Green Zone that had noxious weeds was top priority, and a higher emphasis was placed on actual SRD dispositions. Inventories on vehicle-accessible geographic areas that had not been inventoried in the last three years were also prioritised.

Notification letters, in consultation with the local SRD Land Use Officer, were sent out to disposition holders known to have weed problems on those locations.

One SRD staff held a Pesticide Applicator Certificate, which allowed for knowledgeable and timely weed management decisions being made in conjunction with disposition holders and vegetation management consultants.

One staff member was retained for the winter of 2007 to create a comprehensive plan for the 2008 season.

Education, Awareness and Co-operative Initiatives

2nd Annual North Eastern Alberta Invasive Plant Workshop

On May 31, 2007 the 2nd Annual Northeastern Alberta Invasive Plant Spring Workshop was held in Athabasca. This workshop was hosted by Alberta Sustainable Resource Development as part of the Area's Cooperative Invasive Plant Working Group.

The target audience for this session was SRD and industry field staff. Topics included "Invasive Plant Biology and Identification", "Invasive Plant Inventory Techniques" as well as "Legislation and Risk Assessment of Invasive Plants". An overview of the invasive plants scene in other parts of the province was also discussed. This included the successful "tall buttercup Control Program" that had previously been completed in the Rocky Mountain House Area and "What's Happening in the Northwest". The topics explored different management options wherever applicable. One other session of particular interest was the "Use of Grazing to Control Noxious Weeds" by Tom Krawec, an Athabasca area rancher. Tom explained how he could get various species of livestock to consume different species of noxious weeds.

A number of interactive activities were also included during the workshop. These included such things as a "Name That Weed Contest" and an "Inventory/ Legislation" contest. The final activity of the day was a "Who Wants to Be a Millionaire – Invasive Plants Edition". The game was a success and participants requested that it be presented again at the 2008 spring workshop.

The workshop was well attended by interested parties from many locations throughout northeast Alberta (and northwest Saskatchewan). Approximately 70 participants provided a good representation of the oil/gas industry, forest products companies, various consulting companies and provincial government personnel.

Collaborative Work with Industry and Municipalities

Cooperation between SRD and private industry (i.e. the oil/gas, forestry, vegetation management, etc.) regarding weed issues in the northeast remains at an acceptable level. This is, in part, due to the emphasis placed on holding an annual workshop where different stakeholders have an opportunity to converse. In a general sense, the majority of disposition holders are aware of and making an effort to control noxious weeds on their properties (dispositions) as prescribed by law. SRD will continue to work with stakeholders to improve awareness, participation and compliance.

Within the Waterways/Lac La Biche areas, more proactive efforts are needed in some of the municipalities to deal with noxious weed issues. Most notably in the green zone where SRD's forestry program mandate is focused.

Weed Signage

A major initiative was undertaken in 2007 regarding signage. A total of 15 information signs were erected at new locations geographically spread throughout the region. Locations were determined in consultation with local SRD Land Use and Forestry Officers. An additional sign that was vandalized during the winter of 2006 was also replaced.

National Forestry Week and Public Inquiries

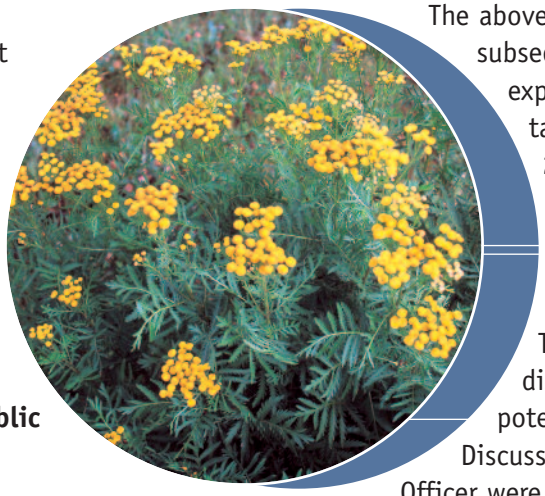
A comprehensive display and information booth pertaining to the noxious weeds of northeast Alberta was set up in conjunction with the National Forestry Week celebration held in Lac La Biche. This successful initiative was well attended by the public.

All public inquiries either in person or via the phone were handled. These inquiries were turned into an impromptu learning session whenever possible.

Surveys and Control

In keeping with SRD's initial objectives, invasive plant efforts on unoccupied (not currently under disposition) Crown lands were consistent with previous years. Most unoccupied Crown land appears to be relatively weed-free, however, it is uncertain how long this will last in those areas. There is no question these areas do need additional control work as most dispositions hold at least a trace amount of noxious weeds.

A concerted effort was made to conduct inventory surveys in selected locations north of the Cold Lake Air Weapons Range and the side roads off secondary highway 881 in the Conklin and Anzac areas. These locations were targeted as it had been a few years since any data had been gathered from Forest Invasive Alien Plants



Common tansy

The above targeted areas were subsequently found to be "dirtier" than expected. This information will be taken into consideration as the 2008 Invasive Plant Management Program is developed.

A major recreational road west of Fort McMurray (locally known as Tower Road, held under a SRD disposition) was identified as a potential control area for 2008. Discussions with the local SRD Land Use Officer were initiated.

Common tansy continued to thrive readily in many locations throughout the entire region. It was especially prevalent in Fort McMurray and all along the Athabasca River. Dr. Alec McClay of McClay Ecoscience is involved in researching and screening new biological control agents for common tansy.

This hopefully will lead to a breakthrough on tansy control in these areas.

White cockle appeared to slowly becoming more established and widespread. One notable infestation was identified in the City of Fort McMurray; subsequently the information was passed on to M.D. of Wood Buffalo officials.

In 2007 a total of 247 sites were surveyed.

% Sites surveyed on vacant vs. occupied land:

Vacant	3%
Occupied	95%
Unknown	2%

Frequency of invasive plant occurrences:

Sites with invasive plants	85%
Sites without invasive plants	15%

Frequency of species occurrences on sites with invasive plants:

Scentless chamomile	41%
Perennial sow-thistle	28%
Common tansy	16%
Canada thistle	8%
Tall buttercup	5%
Ox-eye daisy	1%
White cockle	1%

Frequency of degree of infestations on sites with invasive plants:

Trace	71%
Low	14%
Moderate	12%
High	3%

Of the survey sites where weeds were present, 175 had only one noxious weed species, 29 had 2 different species, and 7 had 3 different species.

In 2007, 18 compliance notifications were sent to disposition holders. This number did not include any notices sent out by SRD Land Use Officers that forest health program staff were not notified of. One Forest Land Use Officer (Bob Yowney – Athabasca) did notify our section that 3 notifications were sent to oil and gas industry representatives covering 18 separate dispositions within his working area.

Re-inspections took place at 15 sites where disposition holders were notified of weed infestations the previous year. Eleven of the 15 re-inspected sites were unsatisfactory. Thirteen of the 15 sites along with one inaccessible site have been added to the 2008 re-inspection ledger. This poor performance on behalf of these particular disposition holders does not necessarily reflect the overall attitude of industry towards the noxious weed problem.

Hand-pulling of noxious weeds was limited to approximately 60 sq. metres in 2007. This included 6 control efforts towards scentless chamomile, 3 for tall buttercup and 1 for white cockle.

Major weed control efforts (after verbal and/or written notification from SRD staff) were undertaken by Husky Energy, Canadian Natural Resources Ltd., and Alberta Pacific Forest Industries Inc., among others. It is expected notification from other disposition holders will arrive at this office later this year. Millar Western Forest Products Ltd. was also in contact with SRD in regards to 2 dispositions with invasive weeds. Their opportunity to spray in these specific areas was missed due to weather concerns.

Good communication between SRD, industry and vegetation control companies was the key for reasonable control efforts being made on noxious weeds.

This was the third year for the May Tower experimental tansy control project. The initial inspection revealed the Tansy in each plot has been reduced quantitatively. After clipping the flowers, a vinegar solution with dish soap as a surfactant was

sprayed on the 3 existing plots where tansy was present. A 7% solution of acetic acid (pickling vinegar) was used. A 4th plot was also established.

Southern Rockies (SW1)

A wet spring and hot conditions in mid-summer in the Southern Rockies Area contributed to desirable conditions for germination and flowering of invasive species.

Cattle and horses may be a significant contributor to the spread of invasive plants. Off road vehicles also contribute to a disturbed land base in which invasive plants may establish. The Castle and South Livingstone areas are prime examples of what kind of damage can be done.

Education, Awareness and Co-operative Initiatives

Participation in the Ed Gregor Stewardship Days facilitated dialogue with several people about the invasive plant program. Weed identification booklets, calendars and posters were handed out to people who had an interest in the program. In addition, numerous informal information sessions took place with a variety of individuals encountered in the field. In these instances, applicable information material was distributed.

Surveys and Control

In 2007 a total of 104 sites were surveyed.

Frequency of species occurrences on sites with invasive plants:

Canada thistle	36%
Oxeye daisy	25%
Tall buttercup	16%
Perennial sow-thistle	5%
Scentless chamomile	5%
Wild caraway	4%
Hound's tongue	3%
Common toadflax	2%
Bladder campion	<1%
Blueweed	<1%
Common Tansy	<1%
Creeping bellflower	<1%
Spotted knapweed	<1%

Frequency of degree of infestations on sites with invasive plants:

Trace	16%
Low	19%
Moderate	30%
High	35%

Control was primarily restricted to areas near Blairmore because it was the most heavily infested area. Secondary areas of control included: Sibbald Flats and the Porcupine Hills; each of these control programs lasted three days. No control was performed in the Ghost, Poll Haven or in the Mclean Creek area. Surveys identified problem areas by roadside and quad trails so these may be controlled in the future.

Surveys also identified a number of SRD facilities infested with a variety of species. These areas included: the Ghost Cadet Camp, Livingstone Gap Firebase, the abandoned Ranger Station on Highway 68 near Sibbald Flats, the Calgary Forestry office, and the Highwood Fire Base. These areas will be considered for control actions in 2008.

Ghost

All roads and staging areas in the Ghost Forest Land Use Zone were surveyed. Perennial sow-thistle and Canada thistle were found on the old road that is being reclaimed into a quad trail known as the "H" Road.

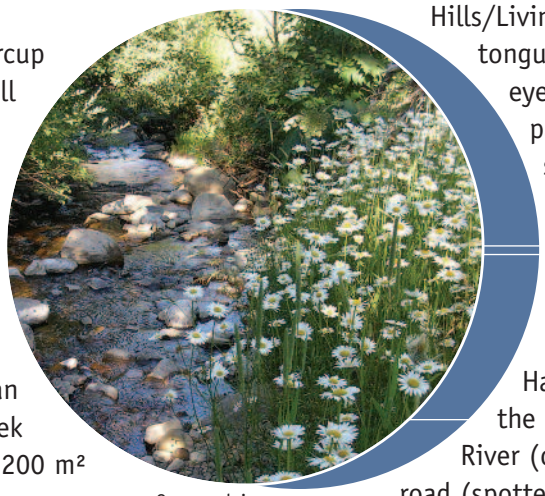
Along the southern portion of the "H" Road (access via the Harold Creek Road and traveling north), mature Canada thistle patches were recorded with a high degree of infestation (>25%) as large as 30 metre long by 5 metre wide. Juvenile Canada thistle was also found sporadically along the trail for several kilometres in patches smaller than 5 m^2. Perennial

sow-thistle had a much lower degree of infestation (<1%) and was not always present.

Along the northern portion of the "H" Road (access via Stud Creek Road and travelling south), no mature Canada thistle plants were present. The Canada thistle plants that had been found were juveniles in patches no bigger than 5 m². Single perennial sow-thistle plants were found at irregular intervals and were never more than trace infestations.

Mclean Creek

In the Mclean Creek off-road vehicle use area, common species encountered throughout included bladder campion, tall buttercup, Canada thistle and perennial sow-thistle. One interesting find was a tall buttercup plant that grew to 1.5 meters tall and almost 3 meters wide. No large-scale control was done in Mclean Creek; hand-picking of approximately 50 m² of scentless chamomile was undertaken. One large infestation of bladder campion was identified and recorded on an off road trail west of Mclean Creek Trail which was estimated to be 200 m² in size.



Ox-eye daisy

Highway 68/Sibbald Flats

Field scabious was the most common invasive plant in this area. The main flats located at the beginning of the Powderface Trail were heavily infested, as was the upper meadow located north of the Dawson Trailhead. The main flats area, where highway 68 intersects the Powderface Trail, was treated with herbicide in 2007.

A large-scale hand-picking operation took place over 2 days in August. Nine SRD mountain pine beetle crew members participated in hand-picking along the stream in the Flats, on some islands in the stream along the east side, in the horse corral, in the demonstration forest, along Bateman creek, along a stream west of Sibbald campground, and along the gated Shell road through the demonstration forest. In total, two truckloads of field scabious were picked.

Porcupine Hills/ Livingstone

The Municipal District (MD) of Ranchland was responsible for control of weeds as agreed to in a memorandum of understanding. The agreement provides the MD with a fixed budget to survey and control noxious and restricted weeds within the MD, on forest lands not under disposition.

Prevalent invasive species in the Porcupine Hills/Livingstone areas included hound's tongue, Canada thistle, bull thistle, ox-eye daisy, leafy spurge, and one patch of bladder campion. Other species of concern included spotted knapweed, tall buttercup, wild caraway, common toadflax, orange hawkweed, blueweed, and scentless chamomile.

Hand picking efforts took place in the Bob Creek area; along the Oldman River (ox-eye daisy); along the Maycroft road (spotted knapweed and leafy spurge); and in the Beaver Creek area (hound's tongue).

Some areas treated with herbicide included the Trout Creek Road and connecting logging roads (bull thistle); the Upper Willow Creek area (hound's tongue); and the Gap Fire Base Camp.

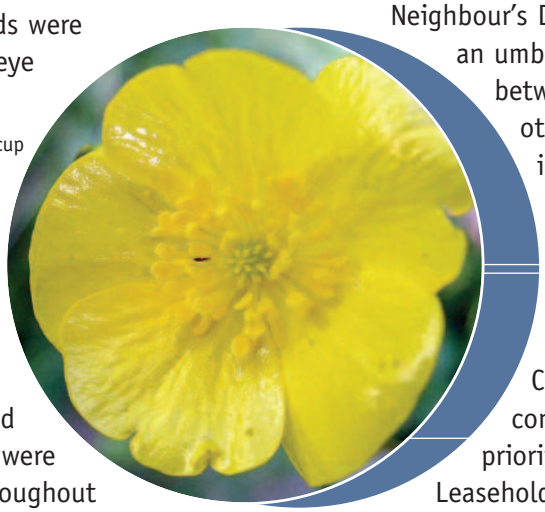
A release of the biological control agent *Mogulones cruciger* was carried out in late August for hound's tongue control in the southeast corner of the Porcupine Hills at N 49.79459 W -113.86897 (north of Ray Neadou's homestead). As well, a biological control agent release to control dalmatian toadflax took place at N 49.62425 W -114.46215 near the "bush pad" in the Crowsnest Pass, west of the golf course.

Castle

Quad tails, random camping and horse riding are common throughout the Castle area, and contribute to the introduction and spread of invasive plants. Of the areas surveyed, the most prevalent species included common toadflax, Canada thistle, and ox-eye daisy.

The Castle Crown Wilderness Coalition deserves special mention (notably Wendy Ryan) for their efforts in weed control. The group hand picked weeds at many sites in the Castle area such as the old minimum security camp and areas around Beaver Mines (including the area adjacent to the Big Sage area).

Herbicides were used to control invasive plants on the fire guard areas of the 2003 Lost Creek Fire. Species present on the fire guards were primarily Canada thistle and ox-eye daisy.



Tall buttercup

Poll Haven

Canada thistle, ox-eye daisy, and tall buttercup were the species of concern in the Poll Haven area. Surveys identified significant Canada thistle infestations along most trails and roads. Ox-eye daisy infestations were rampant in meadows located throughout the area. Bladder campion had been noted in the horse corals near the Northeast entrance of Poll Haven but absent everywhere else. Small wild caraway sites were identified in the Southern portion near the United States border.

Managing invasive plants in Poll Haven is a cooperative effort between Sustainable Resource Development (forestry and range programs) and the Grazing Association. Control in the Green Zone portion of this area was not completed due to a forest closure.

Clearwater (SW2)

Very warm temperatures in June & July, accompanied by regular rainfalls, aided germination and accelerated growth. In approximately two weeks, plants went from rosette stage to bolts in full bloom. August was quite cool by comparison. Ample moisture, kept vegetation green and blooming into September.

<u>Education, Awareness and Co-operative Initiatives</u>

All of the invasive plant awareness signs installed in 2006 were visited and all were in very good shape, with no graffiti or vandalism. No new signs were installed in 2007.

The Sundre Ranger Station Forest Officer attended the Sundre Petroleum Operator's Group (SPOG) Neighbour's Day on September 12th. SPOG is an umbrella group that supports dialogue between industry, landowners, and other activities such as grazing. As in the past, Neighbour's Day was phenomenally well attended and was an excellent opportunity to raise the profile of SRD's invasive plant program.

Co-operative weed management continued to be the first spending priority in the Clearwater Area. Leaseholder participation was consistent. The last portion of the Rig Street co-operative, a Head Tax Permit area south of Caroline was completed.

Sundre Forest Products participated in two additional co-operative spray projects; first one in the Williams Creek area and the second along Trout Road, north of Meadows Historical Cabin.

SRD sent emails to leaseholders requesting participation in treating a small area near Stafne Ridge. No response was received.

In fall 2007, letters of recognition were sent to all stakeholders involved in co-operative weed management initiatives, and the same will be done again in 2008.

Surveys and Control

In 2007 a total of 221 sites were surveyed.

Frequency of species occurrences on sites with invasive plants:

Wild Caraway	47%
Tall buttercup	31%
Canada thistle	10%
Common tansy	4%
Scentless chamomile	3%
Oxeye daisy	3%
White cockle	1%
Perennial sow-thistle	<1%
Common toadflax	<1%

Frequency of degree of infestations on sites with invasive plants:

Trace	19%
Low	26%
Moderate	34%
High	21%

The final phase of the Rig Street cooperative project, a Head Tax Permit grazing area south of Caroline, was the first priority. This area comprised about 2/3 of Township 35, Range 06. Primary weeds controlled in the area were wild caraway, tall buttercup and Canada thistle. The six participating leaseholders were Taylor NGL Ltd., Shell Canada Inc., Shiningbank Energy Ltd., Prime West Energy Inc., Fortis Alberta and AltaLink. This co-operative was a 3-year project.

The backcountry staging areas of the Wapiabi, Blackstone and Eagle Creek were the next priority areas. The coordinator applied herbicide on the weeds in the Eagle Creek and Hummingbird staging areas and random spots along Wapiabi Road during survey.

A contractor was hired to treat the flats at Blackstone River and some other sites west along the Gap road. The flats were looking very good – only scattered wild caraway and tall buttercup plants. The Provincial Recreation Area (PRA) beside the Blackstone River was also treated; the coordinator contacted Myles Jensen of Tourism, Parks & Protected Areas and he agreed to have the SRD contractor spray the wild caraway in the PRA and to pay for the work.

Many of the wild caraway sites that have been treated annually for the last few years are nearly eradicated; however more and more new wild caraway sites are appearing along the Forestry Trunk Road. The co-ordinator treated some infested sites, Clearwater County treated others, but some sites at the north end were left untreated. These sites were in Yellowhead County where caraway has not been elevated to the Noxious designation, and therefore Alberta Infrastructure & Transportation was not bound by the Weed Control Act to control the plant.

The 2004 Owl River Road Co-operative spray area was surveyed and the tall buttercup was sparsely populated through the area. Significant residual was still apparent. Touch-up control should be completed by 2009 to ensure the previously widespread infestation does not re-establish.

A small tall buttercup infestation near the old Clearwater Forestry Cabin seemed to have been eradicated. A much larger tall buttercup infestation was discovered in a hayfield, and this will need to be treated in 2008.

Foothills (SW3)

The 2007 invasive plants program began in May and ended in the last week of August. Brooks Horne, Forest Heath Officer, Christy Messier, Forest Health Technician and Caroline Charbonneau, Assistant Forest Health Technician led the program.

The goals were to identify areas with invasive plants, initiate control and educate a diverse group of people on the effects of invasive plants in the Foothills Area.

Education, Awareness and Co-operative Initiatives

A considerable amount of time was spent on preparing presentations for various groups of people. These groups were 10 members of a fire crew, 6 Girl Junior Forest Rangers (2nd yrs) and 5 Boy Junior Forest Rangers (2nd yr). A plant press was created to support the presentations made throughout the season. Three weed presentations were given in the Hinton Interpretive Park along with weed handouts followed by hand picking.

For Parks Day on July 21st, an information board was created which featured invasive plants. Various pamphlets were available along with invasive plants pencils. This board was presented on a table at the visitor's center in William A. Switzer Park along with the pressed plant exhibit that included six major species of weeds of the area.

Brent Korolischuk from Canadian Natural Resources Limited asked for an invasive plants presentation to be held at the Wildhay Gas Plant and at the Edson Curling Center Conference Room in August. The presentations involved weed pictures, live samples for identification, and a discussion on the issues and damage caused by invasive plants in Alberta. Approximately 100 people were present for these two combined presentations. Information pamphlets and "weed pencils" were handed out.

The 2nd year Girl Junior Forest Rangers put informational weed signs in the Area. These signs are designed to educate the public on invasive plants in the Foothills Area where heavy traffic occurs. Three new signs were placed; one along highway 40 North in William A. Switzer Park at the rest stop, another by the Athabasca bridge on Willow Creek Road, and the last one at the Obed Summit lookout point on Highway 16 west.

Posters and pamphlets were placed in various parks and recreational areas in the Area. The offices at Edson and Grande Cache received 100 weed pamphlets and 5 weed posters during the season, along with other various awareness products for the public.

Surveys and Control

Inspections for the 2007 season were focused mainly along Highway 40 North from Hinton to Grande Cache for approximately 5 weeks during June and July. Several accessible roads were examined, including major haul roads, cut block roads, oil and gas dispositions and public access points.

A total of 383 sites were surveyed in 2007.

Frequency of species occurrences on sites with invasive plants:

Tall buttercup	41%
Ox-eye daisy	37%
Perennial sow-thistle	11%
Scentless chamomile	6%
Canada thistle	4%
Common tansy	1%

Frequency of degree of infestations on sites with invasive plants:

Trace	N/A
Low	24%
Moderate	36%
High	51%

Letters of notification were then sent out to all disposition holders and their field consultants informing them of their weed infestations, the size of the area and the species of weeds found. A total of 67 dispositions were deemed infested within 20 companies. Copies were retained for office files and the letters were also given to either Yellowhead County or Greenview Municipal District.

Herbicide applications were planned to control invasive plants in the following six areas:

- Peppers Lake (SW 36-51-26-5)
- Chip Lake (NW 23-23-54-10-5) (SW 23-23-51-10-5)
- Old Rehn Mill (NE 8-51-10-5)
- Entwistle Gravel Pit (SW 8-53-7-5)
- Cynthia Reclaimed Well (SE 3-50-10-5)
- Pedley Gravel Pit (NW 10-52-24-5)

Herbicide was applied at all sites except the Chip Lake and Entwistle Gravel Pit sites. The smallest of the Chip Lake sites was not sprayed in the exact areas needed. On the large Chip Lake site, issues arose when a nearby farmer ploughed the field, eliminating the weeds on site. The main reason for not continuing with the spray program was due to alfalfa seedlings growing in the field. The southwest side of the Entwistle Gravel Pit was missed near the fence line and the gravel mounds should have also been added to the contract.

In addition to the control work conducted by SRD, the Hinton Interpretive Park was granted $4500 for invasive plant control. The park purchased herbicide for

Woodlands (SW4)

The Woodlands Area weed program started in May and completed in late August. Priorities were to inventory invasive plants at government facilities within the Woodlands Area.

Surveys and Control

In 2007 a total of 95 sites were surveyed.

% Sites surveyed on vacant vs. occupied land:

Vacant	30%
Occupied	70%

Frequency of invasive plant occurrences:

Sites with invasive plants	76%
Sites without invasive plants	24%

Frequency of species occurrences on sites with invasive plants:

Perennial sow-thistle	45%
Canada thistle	31%
Scentless chamomile	9%
Tall buttercup	6%
Common tansy	4%
Ox-eye daisy	2%
Nodding thistle	2%
Cleavers	<1%
Common toadflax	<1%
Field bindweed	<1%

Frequency of degree of infestations on sites with invasive plants:

Trace	35%
Low	53%
Moderate	6%
High	6%

The following table provides information on the 7 sites where herbicide was applied in 2007:

Latitude	Longitude	Species	Degree of infestation
53 53.578	114 53.919	Canada thistle	Moderate 5-25% cover, less than 1 ha
54 15.216	115 15.788	Canada thistle	Moderate 5-25% cover, less than 1 ha
		Perennial sow-thistle	Trace less than 5%, less than 1 ha
53 59.621	114 12.023	Common tansy	Moderate 5-25% cover, less than 1 ha
		Canada thistle	Low about 5% cover, less than 1 ha
54 04.771	114 15.591	Canada thistle	Moderate 5-25% cover, less than 1 ha
		Perennial sow-thistle	Low about 5% cover, less than 1 ha
54 00.809	114 48.677	Canada Thistle	Moderate 5-25% cover, less than 1 ha
		Scentless chamomile	Low about 5% cover, less than 1 ha
53 53.854	114 12.047	Canada thistle	Moderate 5-25% cover, less than 1 ha
		Perennial sow-thistle	Low about 5% cover, less than 1 ha
		Common tansy	Moderate 5-25% cover, less than 1 ha
54 19.217	114 44.361	Canada thistle	Moderate 5-25% cover, less than 1 ha
		Common tansy	Low about 5% cover, less than 1 ha

August 10th was spent with the Junior Forest Rangers at the Lose Gun Recreational Area in Fox Creek. At this location there was an abundance of Canada thistle as well as perennial sow-thistle. The group was split into two crews and one crew pulled weeds by the shoreline while the other crew pulled weeds around the camping areas. Fifteen garbage bags of weeds were then transported to the burner located at Mostowich Lumber.

Canada thistle

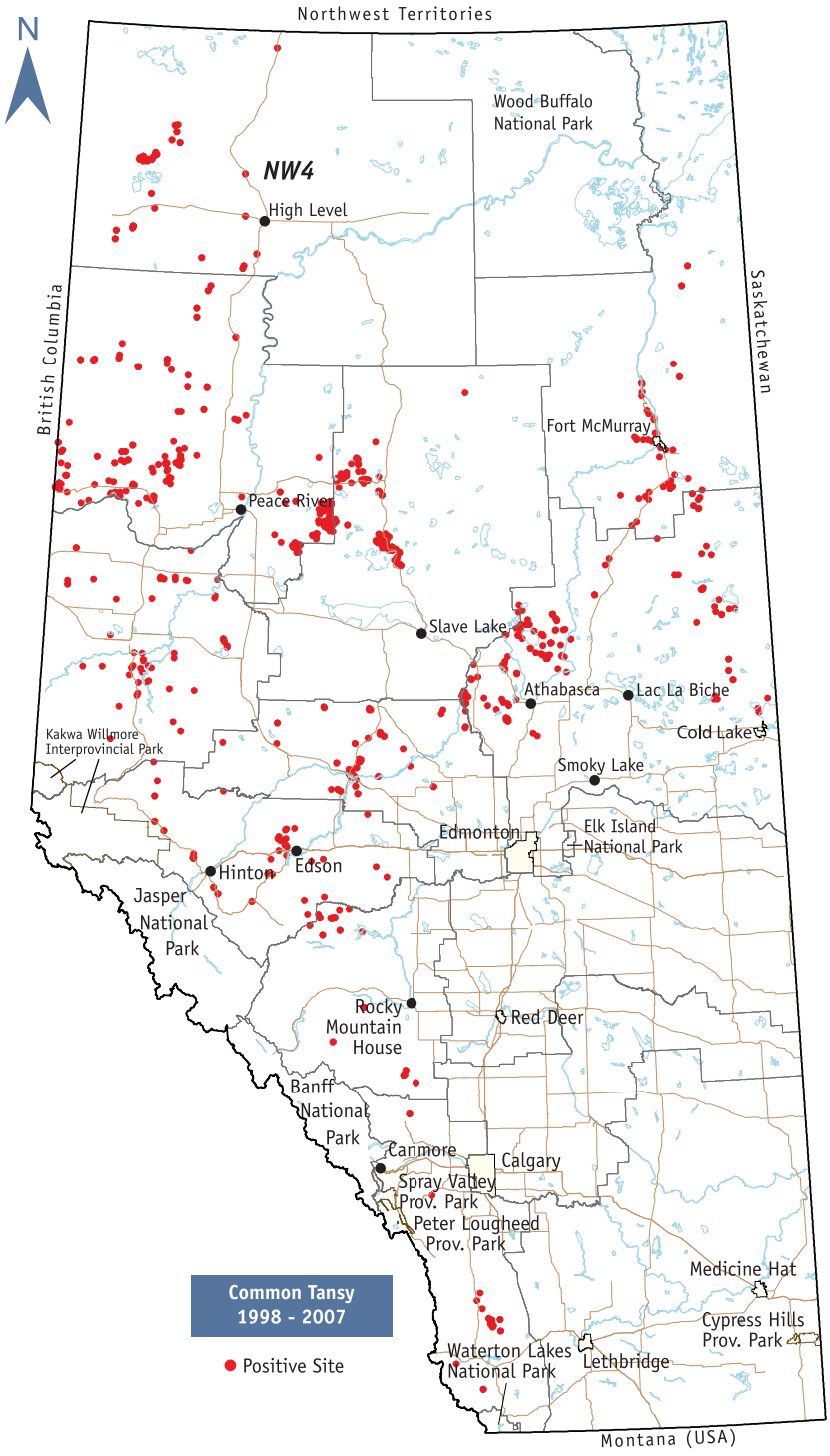


Figure 13
Distribution of Common Tansy in Alberta, 1998 – 2007.

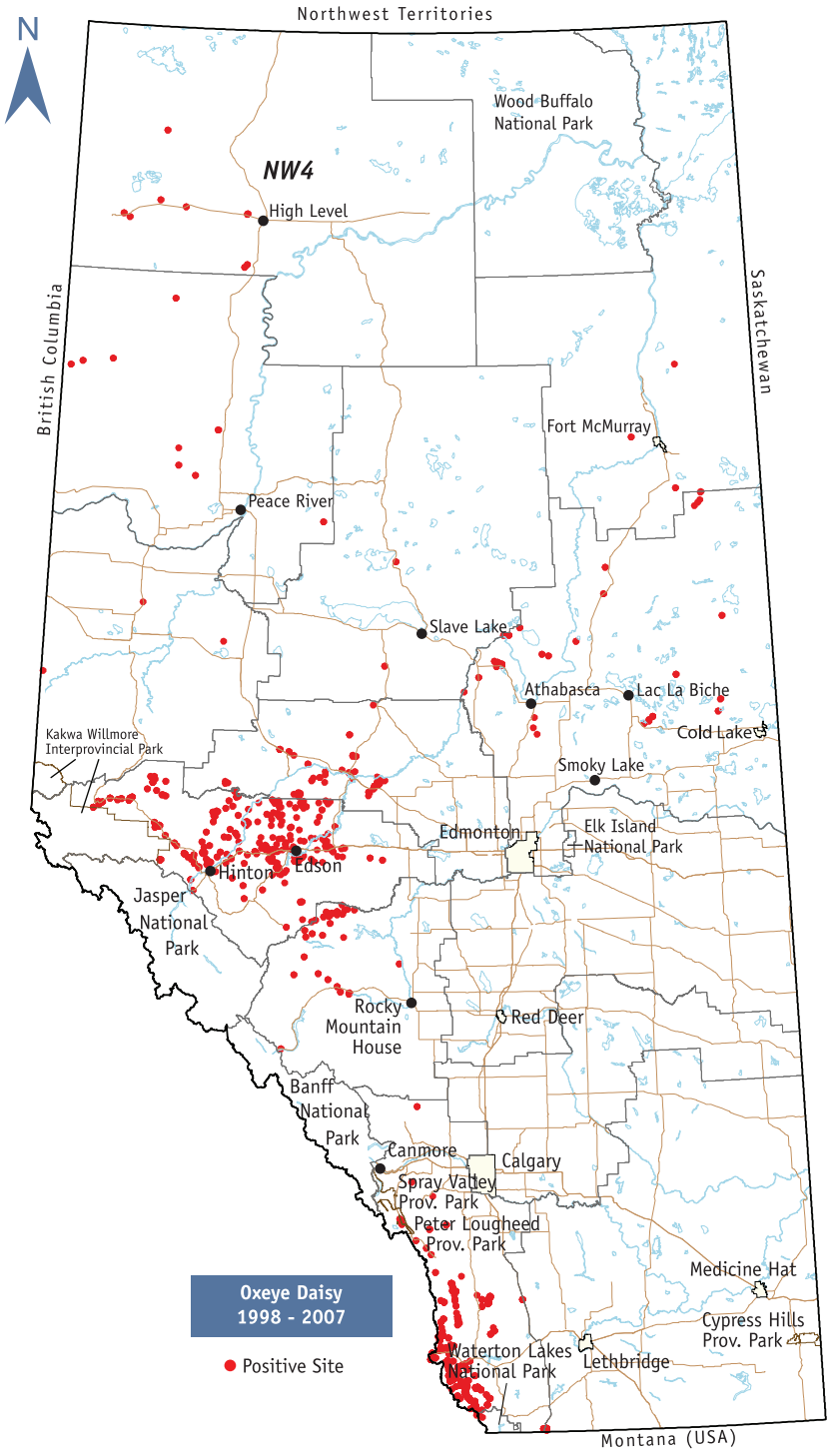


Figure 14
Distribution of Oxeye Daisy in Alberta, 1998 – 2007.

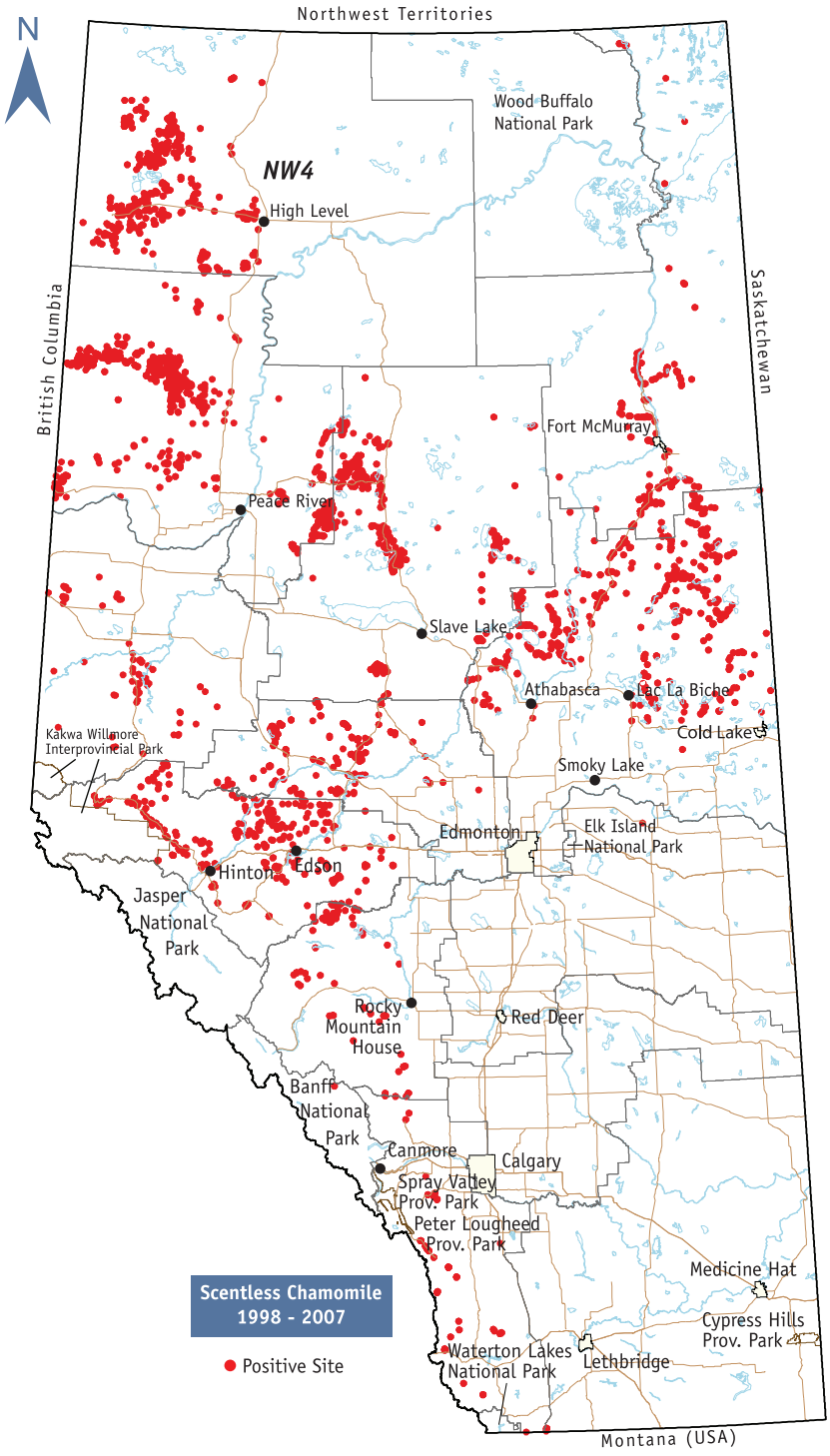


Figure 15
Distribution of Scentless Chamomile in Alberta, 1998 – 2007.

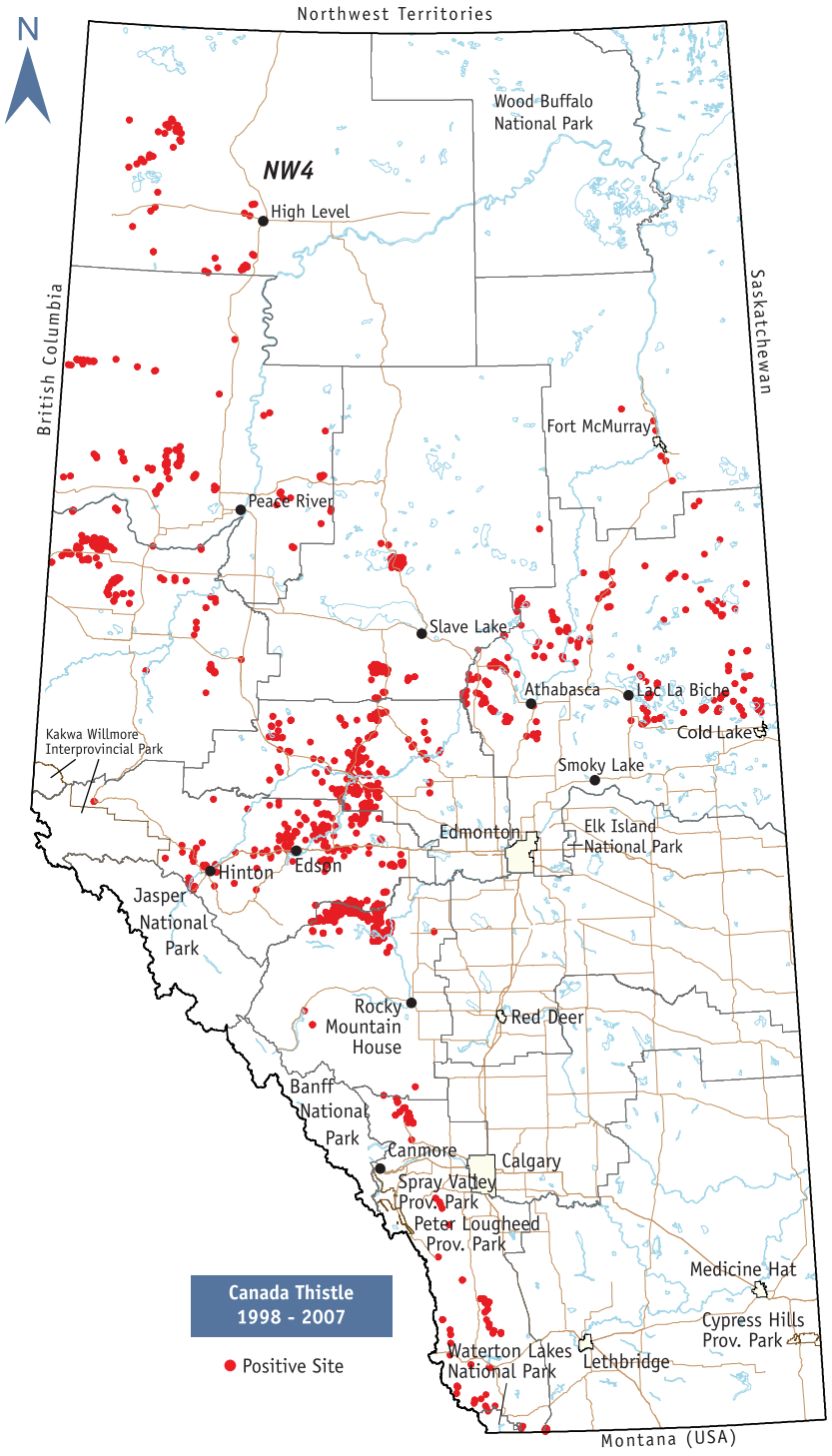


Figure 16
Distribution of Canada Thistle in Alberta, 1998 – 2007.

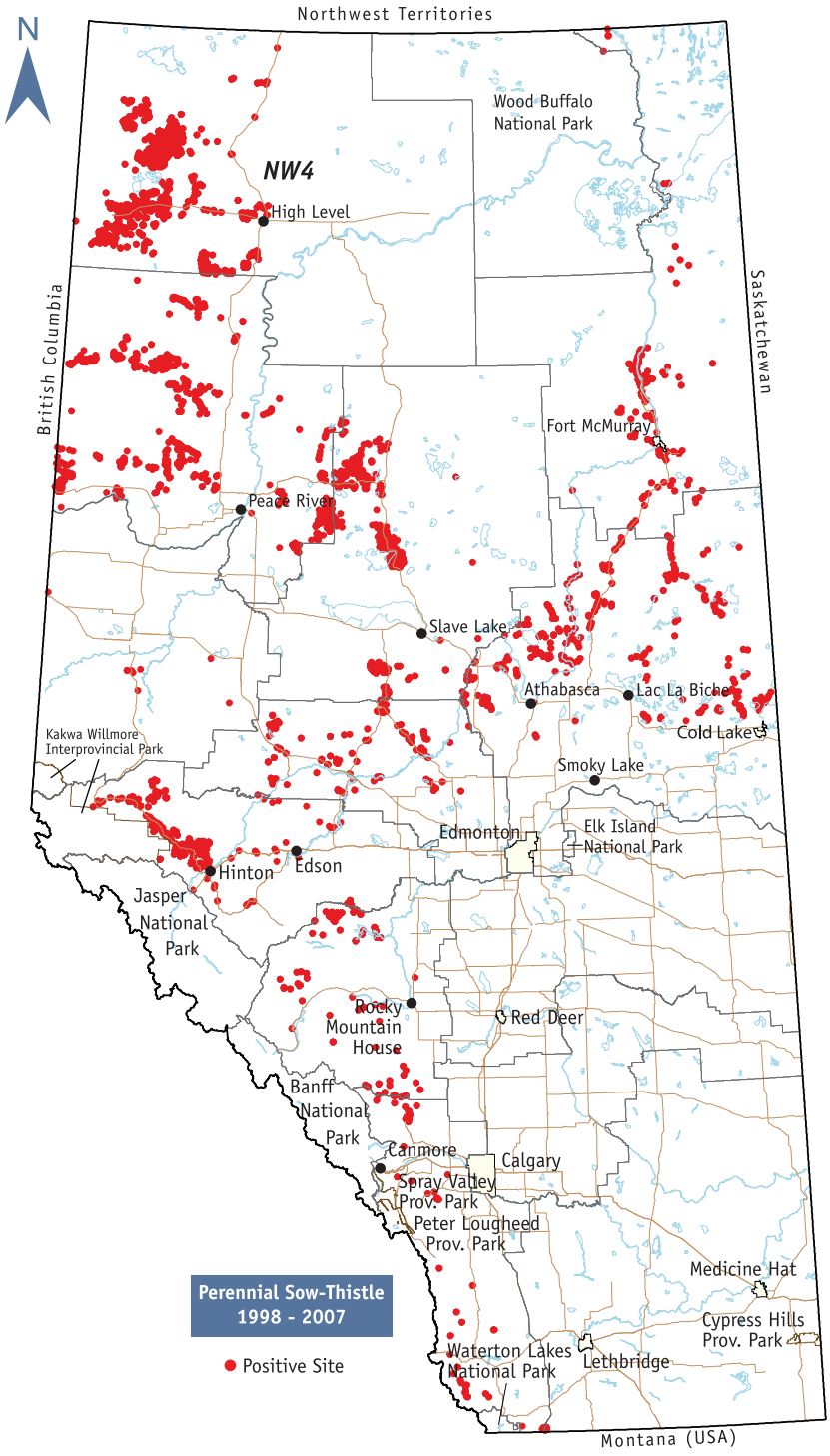


Figure 17
Distribution of Perennial Sow-Thistle in Alberta, 1998 – 2007.

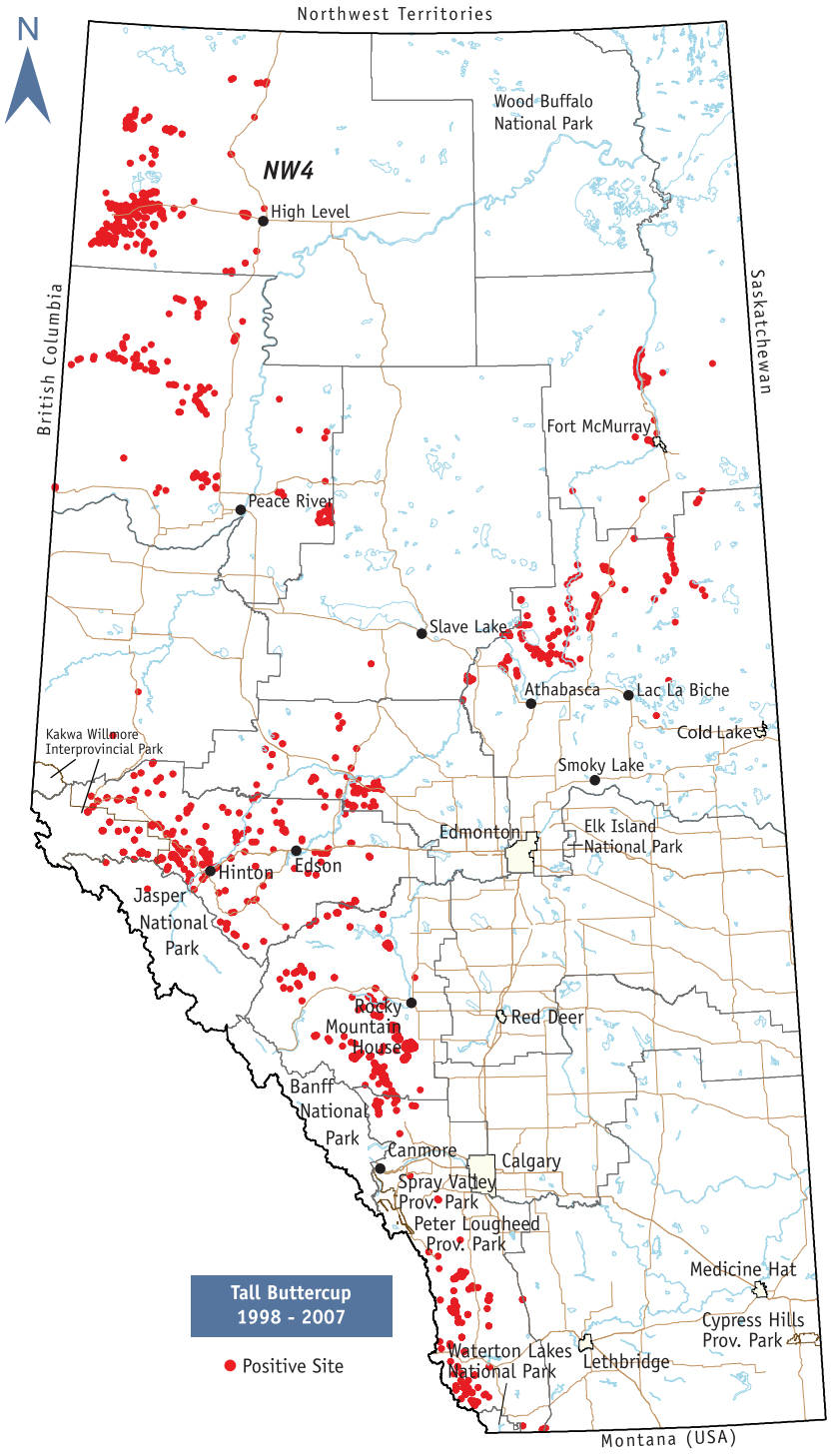


Figure 18
Distribution of Tall Buttercup in Alberta, 1998 – 2007.