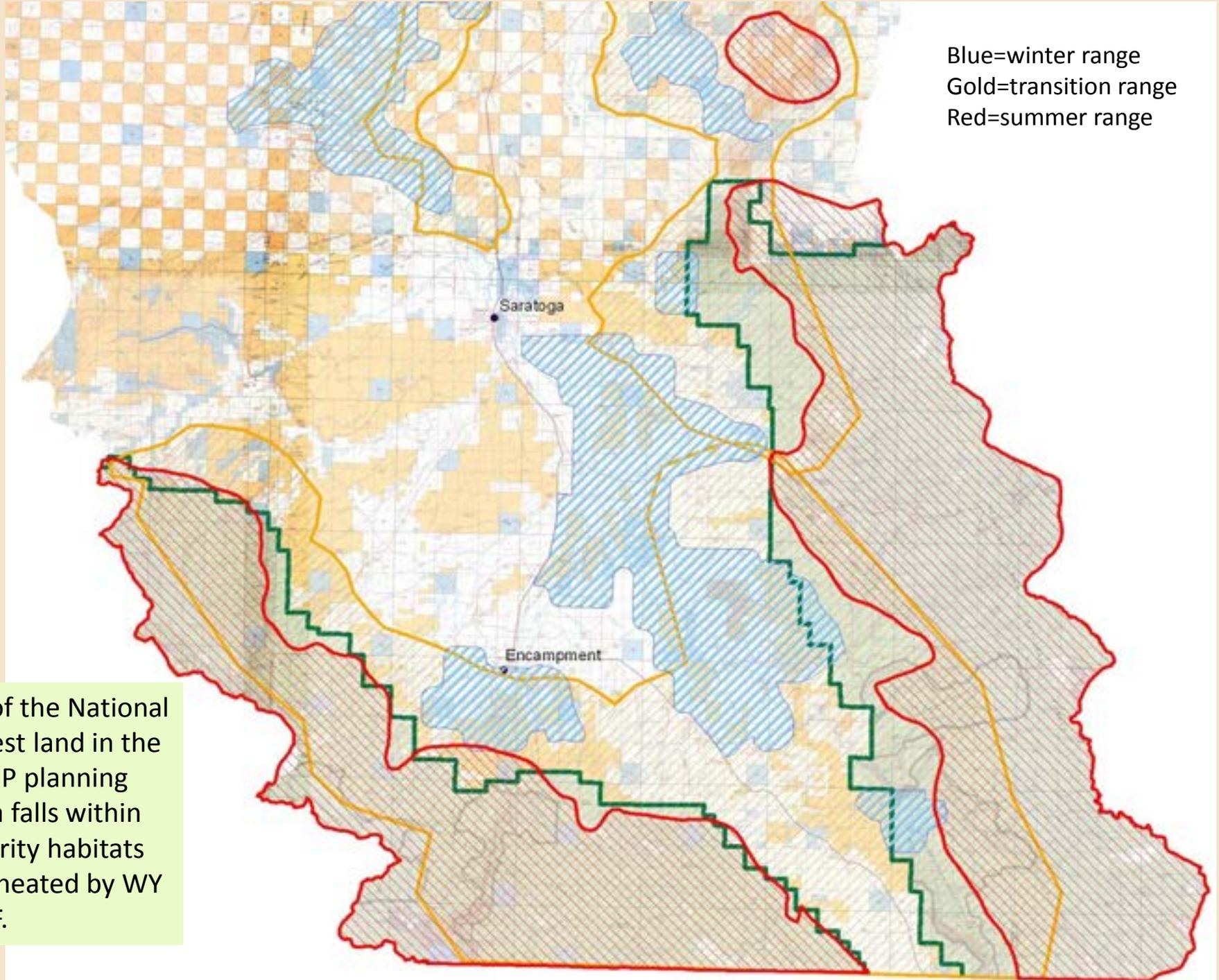


Shrubland, Riparian and Aspen Management on National Forest Land in the Platte Valley Habitat Partnership Planning Area

Past, On-going and Planned
Treatments

Blue=winter range
Gold=transition range
Red=summer range



Saratoga

Encampment

All of the National Forest land in the PVHP planning area falls within priority habitats delineated by WY G&F.



Shrubland Management

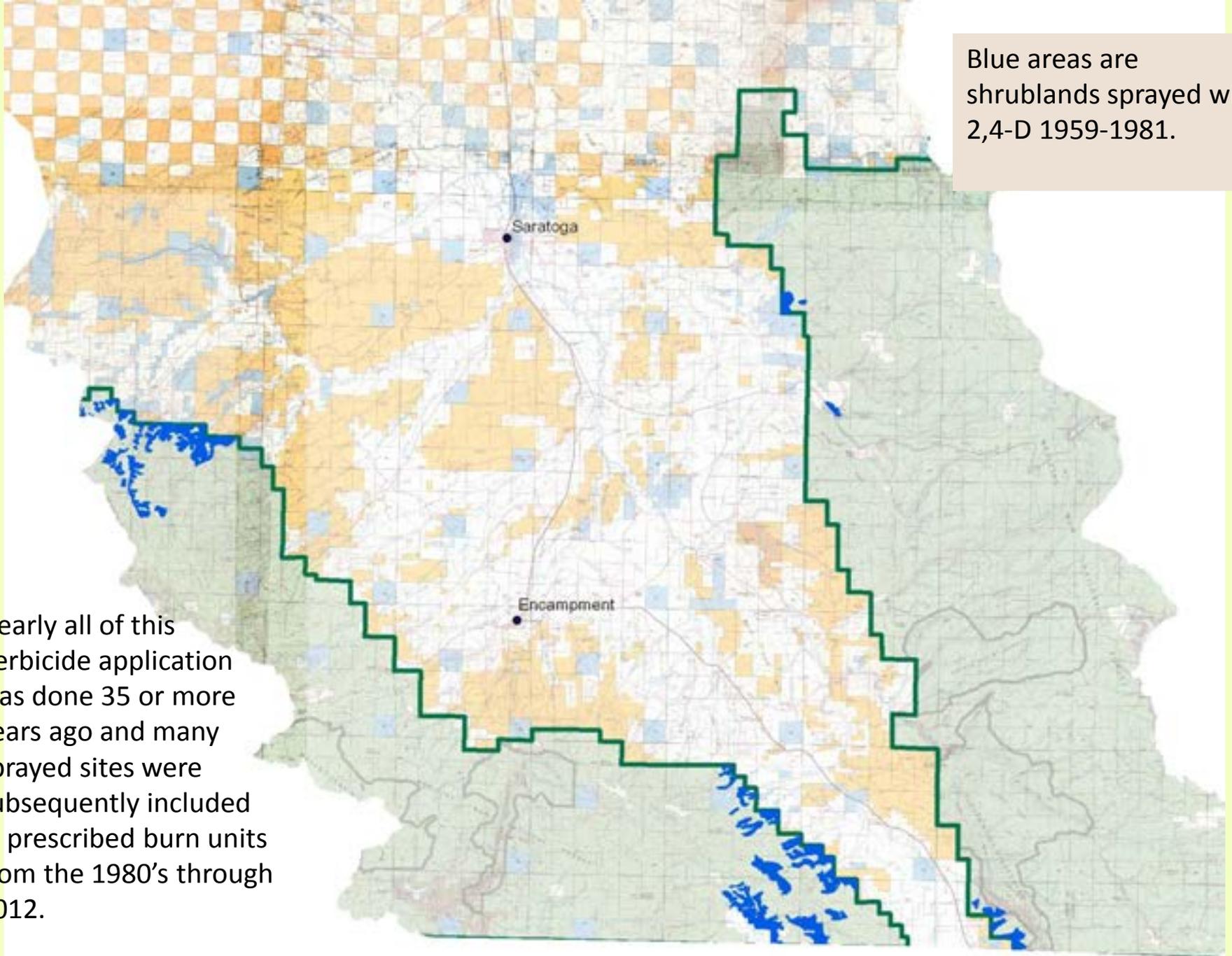
Shrublands Sprayed with 2,4-D Herbicide

<u>Treatment</u>	<u>Year of Treatment</u>	<u>Acres Treated</u>
Herbicide (2,4-D) Spray	1981	98
Herbicide (2,4-D) Spray	1971-1975	843
Herbicide (2,4-D) Spray	1961-1966	6,879
Herbicide (2,4-D) Spray	1959	1,386
TOTAL ACRES TREATED WITH 2,4-D HERBICIDE		9,206

The herbicide 2,4-D kills sagebrush and most other broad-leaved forbs, shrubs and trees. It does not harm grasses.

Blue areas are shrublands sprayed with 2,4-D 1959-1981.

Nearly all of this herbicide application was done 35 or more years ago and many sprayed sites were subsequently included in prescribed burn units from the 1980's through 2012.



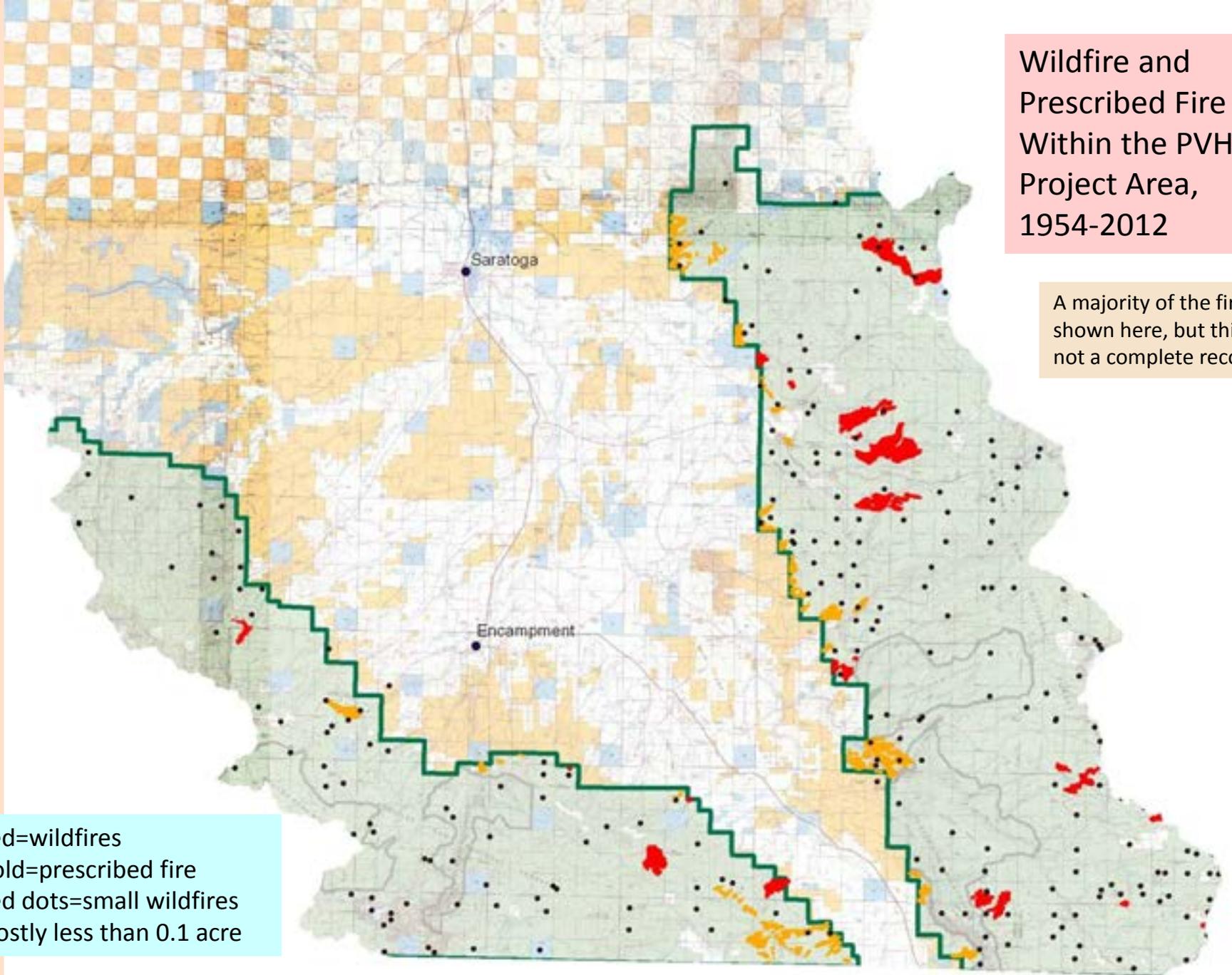
Prescribed Fire and Wildfire Within PVHP Boundary

<u>Treatment or Event</u>	<u>Year</u>	<u>Predominant Vegetation</u>	<u>Acres</u>
Prescribed Burns	2000-2009	Mtn. Shrub	1,915
Prescribed Burns	1991-1999	Mtn. Shrub	1,015
Prescribed Burn	1980-1989	Mtn. Shrub	<u>1,360</u>
			4,290
Wildfire	2000-2012	Mostly coniferous forest	827
Wildfire	1990-1998	Mostly coniferous forest	514
Wildfire	1987	Mostly Mtn. shrub	365
Wildfire	1973-1977	Mostly coniferous forest	793
Wildfire	1964-1969	Coniferous Forest	1,452
Wildfire	1954-1955	Mostly coniferous forest	763
274 small spot wildfires (most < 1 acre)	1970-2000	Mostly coniferous forest	<u>247</u>
			4,961
		TOTAL ACRES BURNED	9,251

Wildfire and Prescribed Fire Within the PVHP Project Area, 1954-2012

A majority of the fires are shown here, but this is not a complete record

Red=wildfires
Gold=prescribed fire
Red dots=small wildfires mostly less than 0.1 acre





Prescribed burning has increased production of herbaceous species, particularly grasses, on most sites.

It has also revitalized bitterbrush, serviceberry and other shrubs that sprout from the root crown following fire. Rate of big sagebrush re-establishment is highly variable among sites.



Vegetative response to burning on Wyoming mountain-shrub big game ranges

(J.G. Cook, T.J. Hershey, L.L. Irwin - J. Range Manage, 47:296-302, July 1994)

- Production of perennial herbaceous vegetation on burned sites averaged twice that of controls 2-3 years post burn
- Burn-induced mortality of serviceberry was $\leq 15\%$, but a 6-fold increase in twig production more than compensated for plant losses
- Mortality of true mountain-mahogany and bitterbrush averaged 25% and 55% respectively, but these losses generally were compensated by increase in browse production
- Crude protein content of perennial grasses and forbs from late spring through early fall was significantly higher on burns for 2 years post-burn.
- Burning in spring minimizes damage to shrubs and perennial herbaceous species and minimizes first-year increases in weedy annual species.



Cunningham Park

7/10/2003

Prescribed burns and wildfires have resulted in cheatgrass infestations on some sites. The greatest increases in cheatgrass occurred during the drought years of 2000-2005.

The Medicine Bow-Routt National Forests and Thunder Basin National Grassland are working on an Invasive Species Management Environmental Impact Statement. The proposed action allows for aerial treatment of cheatgrass with the herbicide Imazapic (Plateau).



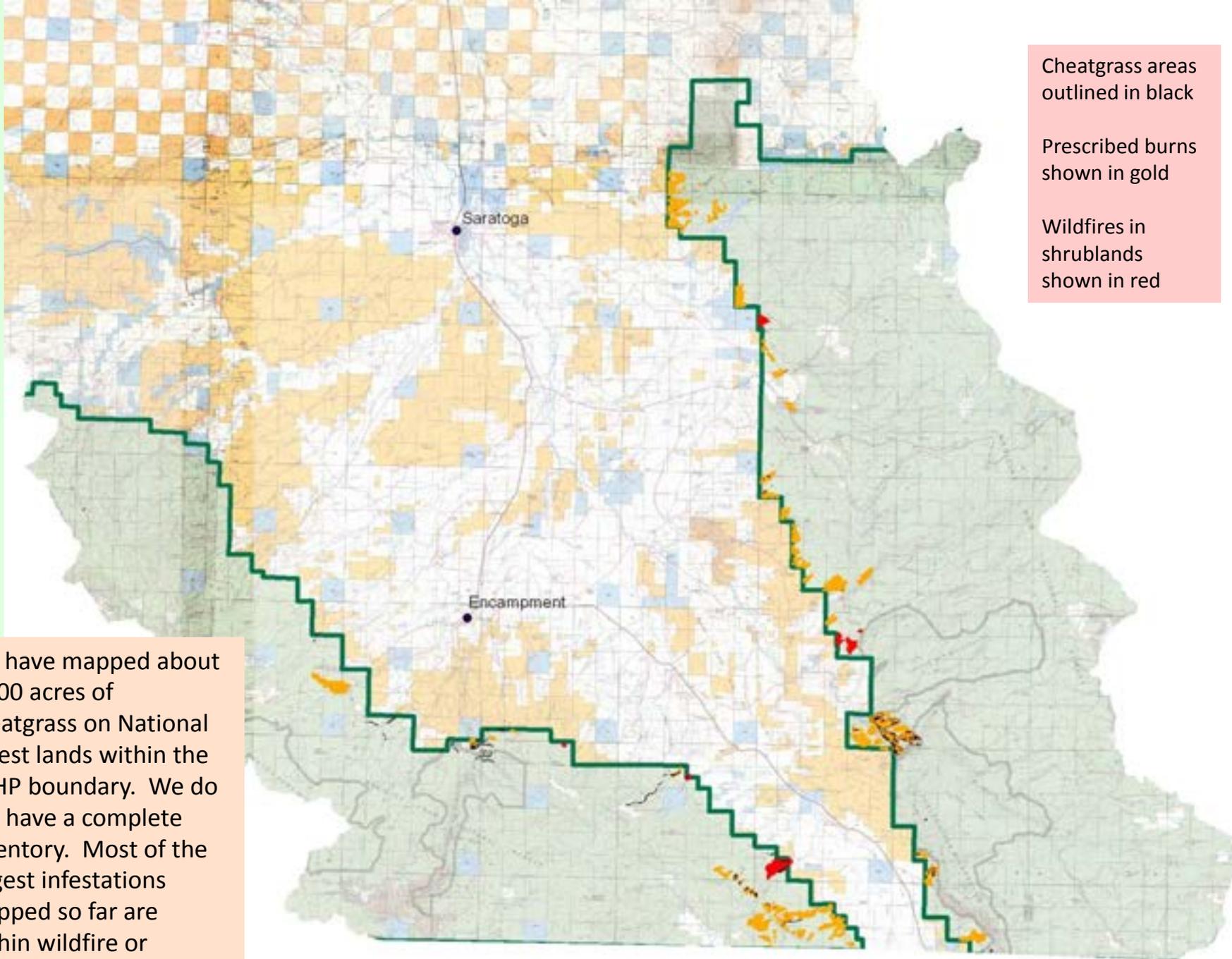
Six Mile

15/9/2003

Herbicide can be a useful tool for reducing cheatgrass, but it is seldom a “cure” for cheatgrass infestations. Every effort should be made to select, implement, and manage shrubland treatments so as to prevent, or at least minimize, cheatgrass establishment.



7/6/2009



Cheatgrass areas outlined in black

Prescribed burns shown in gold

Wildfires in shrublands shown in red

We have mapped about 1,000 acres of cheatgrass on National Forest lands within the PVHP boundary. We do not have a complete inventory. Most of the largest infestations mapped so far are within wildfire or prescribed burn areas.

Fertilization of Shrublands or Lodgepole Pine Clear Cuts

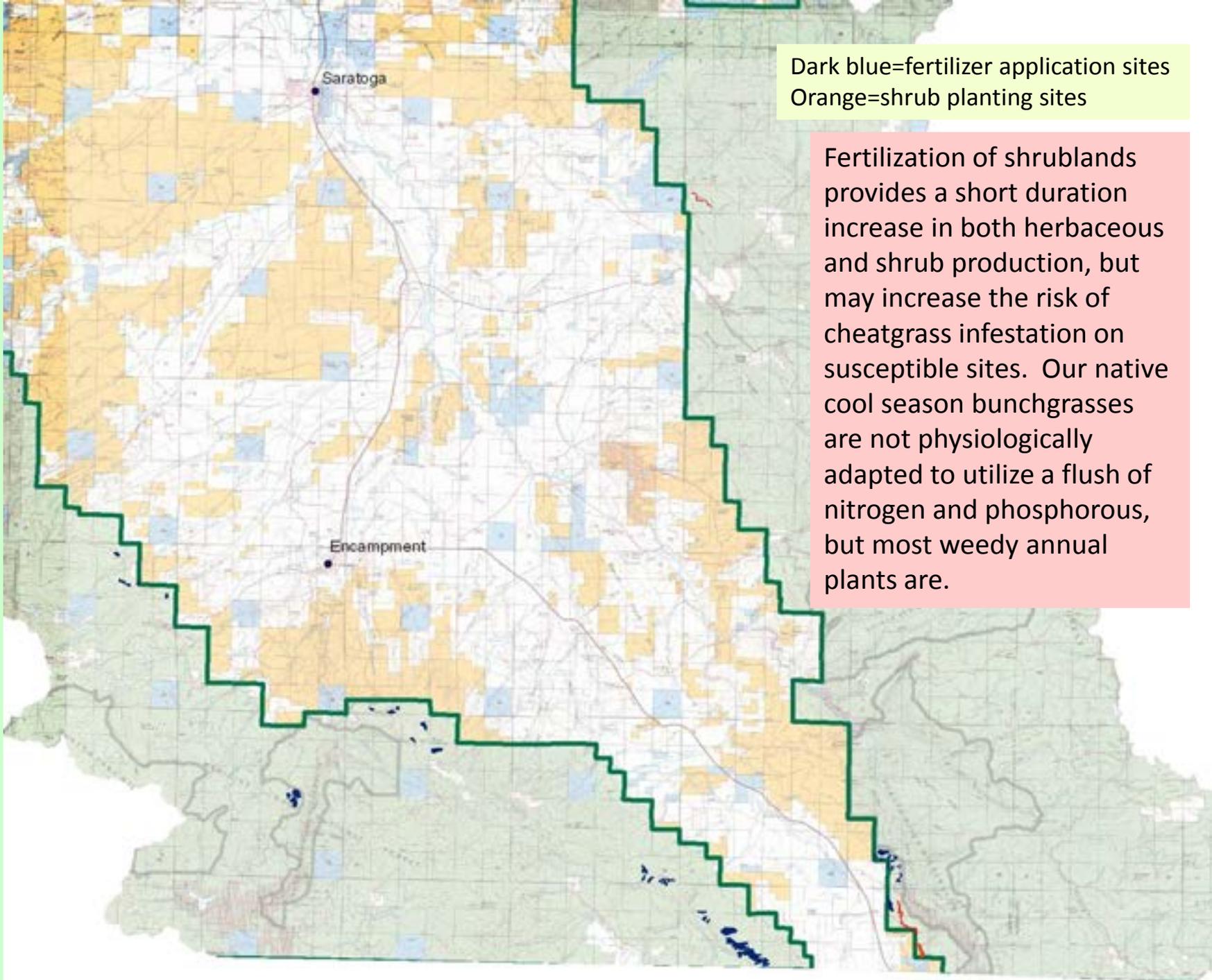
<u>Treatment</u>	<u>Year of Treatment</u>	<u>Predominant Vegetation</u>	<u>Acres Treated</u>
Fertilization	1990-1994	Clear cuts in coniferous forest	122
Fertilization	1984-1989	Mostly mtn. shrub, a few clear cuts	644
TOTAL ACRES FERTILIZED			766

Shrub Planting

<u>Treatment</u>	<u>Year of Treatment</u>	<u>Predominant Vegetation</u>	<u>Acres Treated</u>
Shrub seeding	1995	Mtn. shrub	72
Planting willow cuttings	1980	Willow/sedge riparian area	8
TOTAL ACRES PLANTED			80



The shrub seeding was done in the Six Mile area. Seed of true mountain-mahogany and serviceberry was broadcast by hand in an attempt to increase shrub species diversity for mule deer. We could not detect any new shrub establishment.



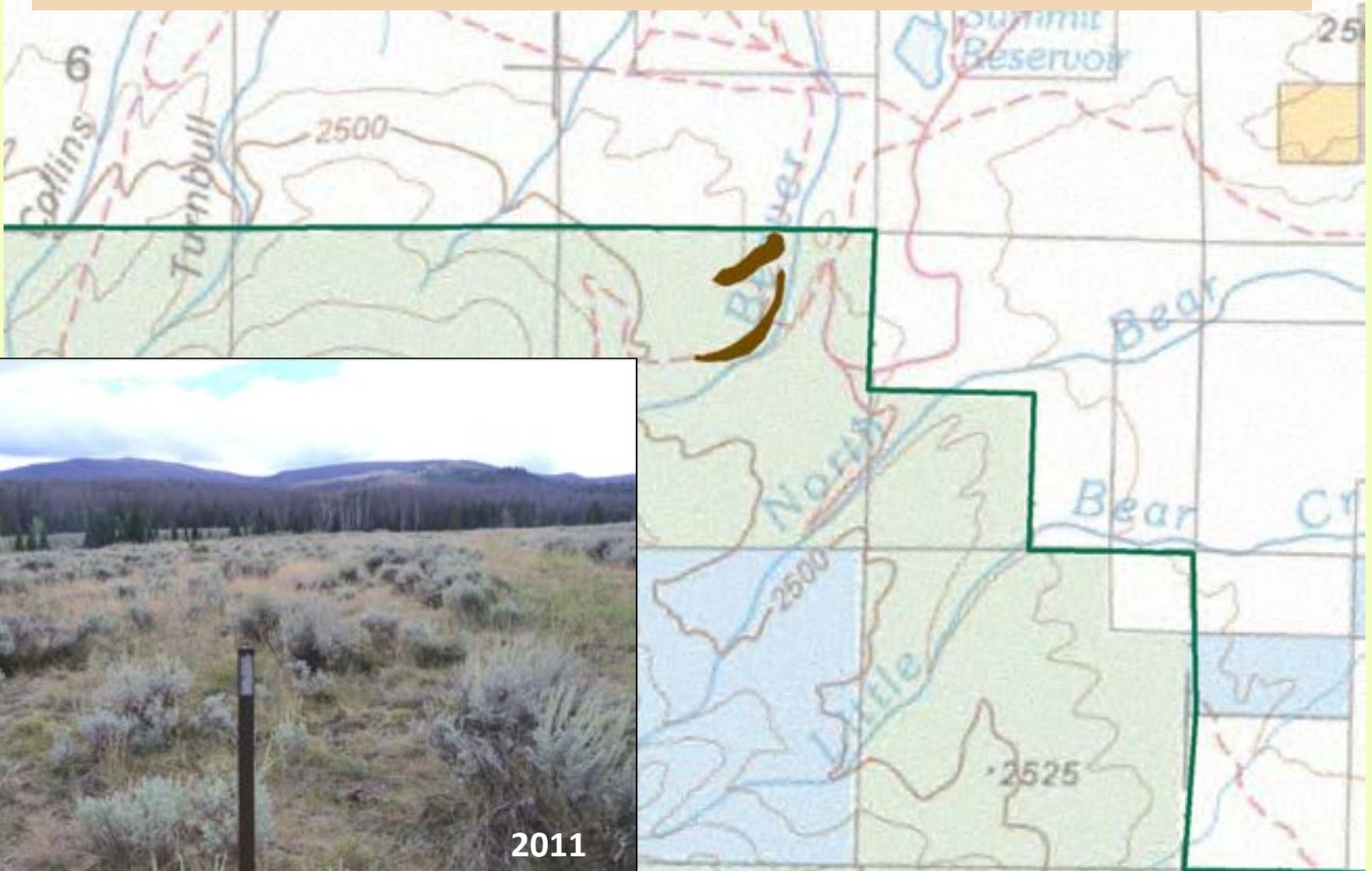
Dark blue=fertilizer application sites
Orange=shrub planting sites

Fertilization of shrublands provides a short duration increase in both herbaceous and shrub production, but may increase the risk of cheatgrass infestation on susceptible sites. Our native cool season bunchgrasses are not physiologically adapted to utilize a flush of nitrogen and phosphorous, but most weedy annual plants are.

Other Treatments

<u>Treatment</u>	<u>Year of Treatment</u>	<u>Acres Treated</u>
Conifer stands converted to shrublands	1988	71
Mowing Big Sagebrush	1988	17
Seeding clear cuts with grasses	1980's	est. 500 acres

Mowing of sagebrush was done in the Little Beaver Creek area of the Sierra Madre. Grass and forb response was good. Twenty-five years later, big sagebrush is coming back in the mowed area, but is still not as dense as the adjacent un-mowed area.

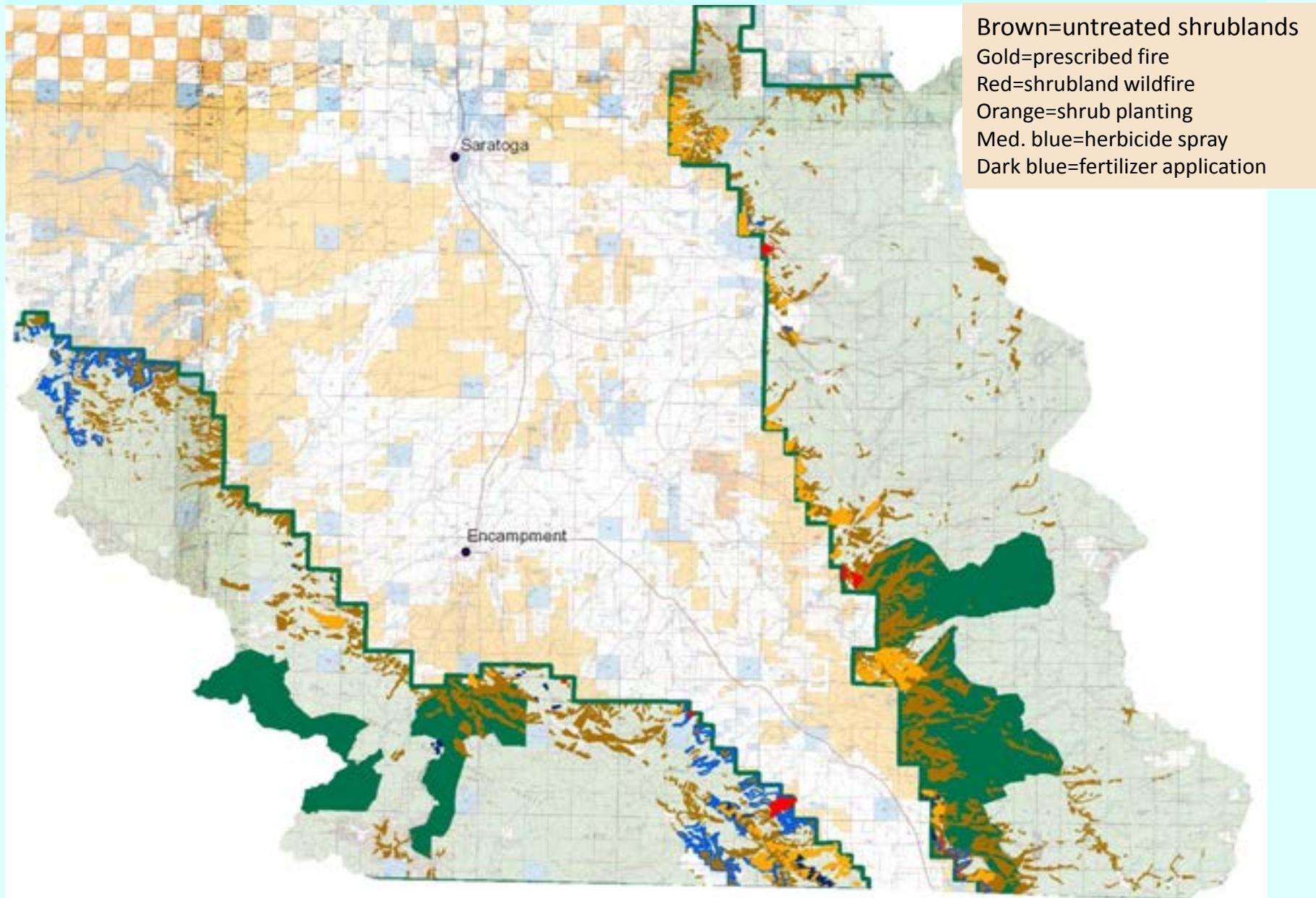


2011

The project to convert two clear cuts to shrublands by removal of regenerating trees was intended to improve habitat for the Encampment River bighorn sheep herd. The clear cuts are on the rim of the Encampment River Canyon, above a clifly area used by the sheep for escape cover and lambing.

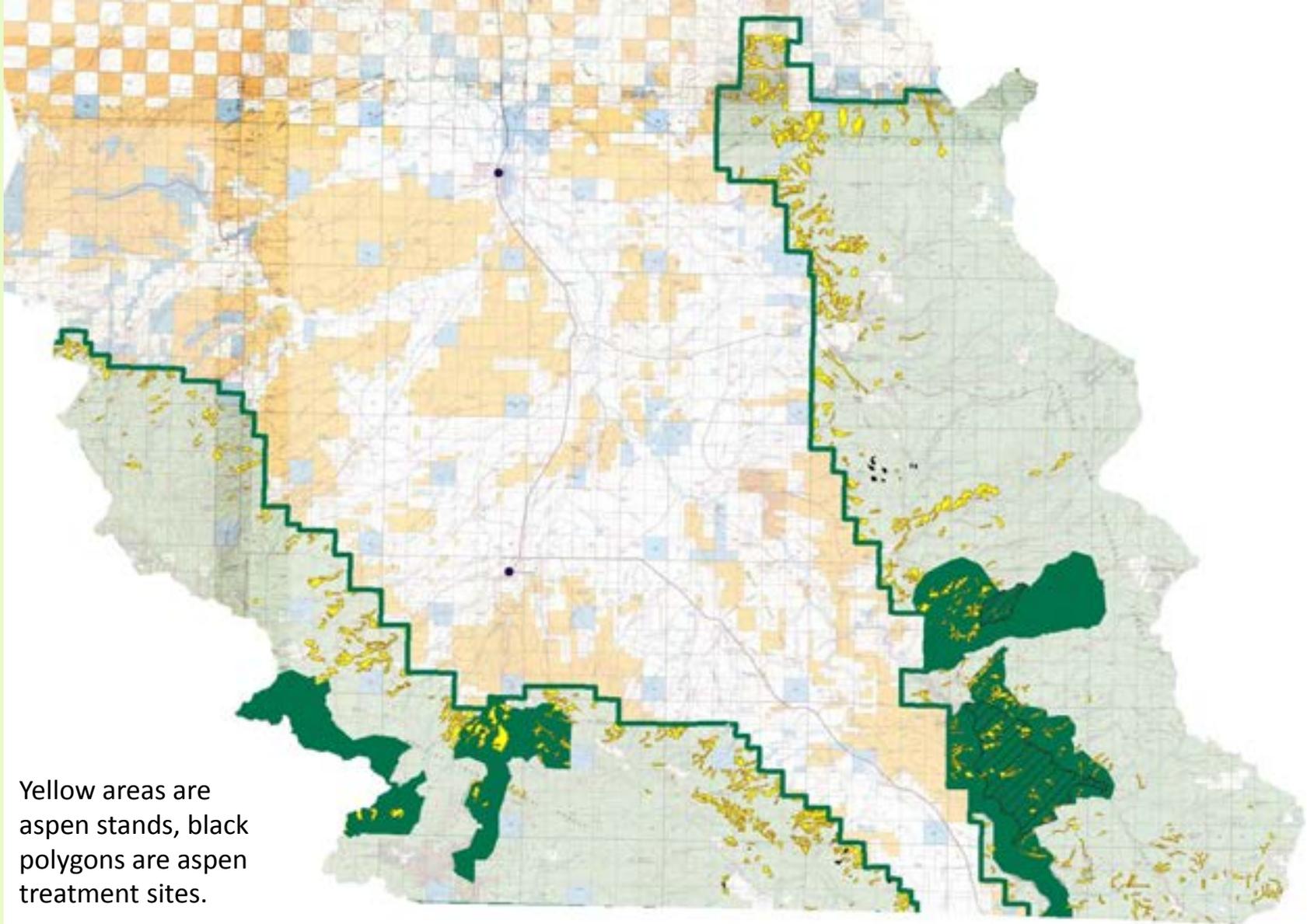


Shrublands are shown below relative to treatments and wildfires 1950's to present.
Wilderness areas are shown in dark green.



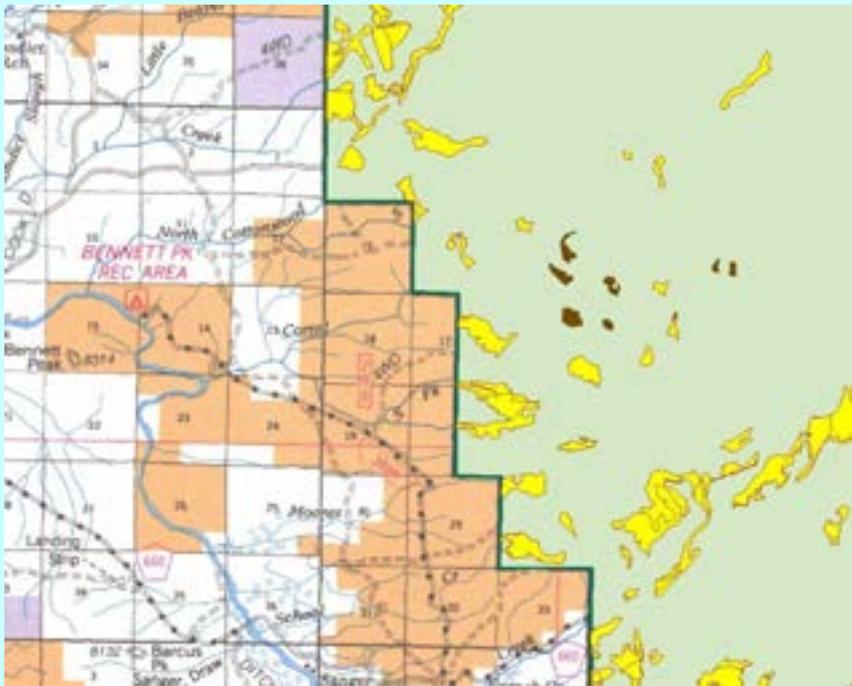
Aspen Management





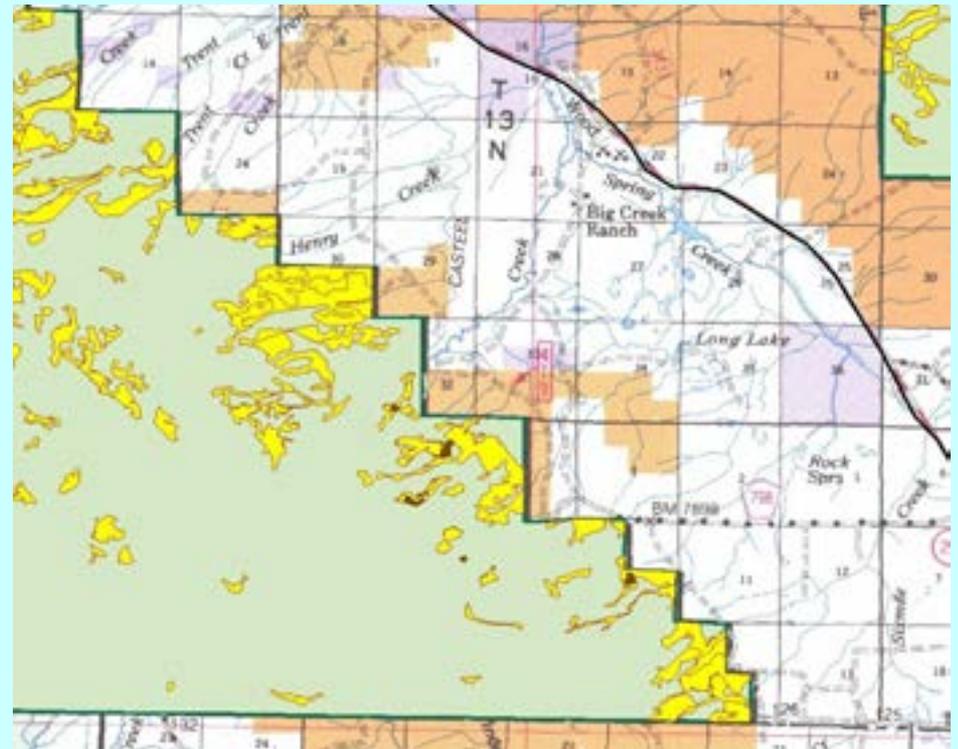
Yellow areas are aspen stands, black polygons are aspen treatment sites.

During the 1990's about 150 acres of aspen were mechanically treated. Some decadent aspen stands were clearcut and some stands had young conifer trees removed from the understory



Aspen clearcuts in the Barrett Ridge and Big Creek areas.

Very small aspen clearcuts of only a few acres may not regenerate very successfully due to heavy browsing of aspen sprouts by elk, deer and/or domestic livestock. Protection of young stands is often necessary for best results.





Best treatment methods depend upon the condition of the individual aspen stands. Many of our aspen stands, such as the one at left, have advanced conifer encroachment. Felling or burning, or a combination of both, would likely be the best treatment for such stands rather than selected conifer removal.

Some stands that died during the drought of 2000-2005, such as the one shown at right, are regenerating well on their own. Removal of young conifers in this stand would prolong the aspen phase of succession.





Large scale lodgepole pine mortality caused by the mountain pine beetle has created opportunities for aspen stands to expand.

Aspens are now receiving more light and more moisture where lodgepole stands have died, creating good conditions for suckering.



Riparian Area Management



The primary “treatment” applied to riparian areas has been improved livestock management, resulting in increases in desirable native riparian vegetation, particularly willows and sedges. The majority of riparian and wetland habitats on the Brush Creek/Hayden District range from fair to excellent condition with stable or upward trends.

Jack Creek Park

Comparison 1953 vs. 2005



Note the increase in size and abundance of willows in the background as well as the difference in residual grasses and forbs left midway through the grazing season.





Jack Creek, showing willow growth along creek banks since 1997



Willow Creek, along Hog Park Road in the
Sierra Madre

1963 vs. 2012



11/22/1963



6/28/2010



9/11/1996

Methodist Creek

1996 vs. 2011



09/26/2011

These two photos were not taken from the same location, but they show the improvements seen all along Methodist Creek - improved vigor of riparian grasses and sedges and more residual vegetation left at the end of the grazing season.



10/13/1992

North Soldier Creek

1992 vs. 2011

These photos were not taken from the same exact location, but were taken in the same meadow.

Note the improved bank stability and vegetation vigor and more residual forage at the end of the grazing season.



10/04/2011



10/13/1995

Upper Teddy Creek

1995 vs. 2010

Sedges have increased in abundance and vigor, and there is more residual vegetation at the end of the grazing season.

Willows, however, continue to decline in this meadow as a result of heavy annual use by elk.

Conifer trees are also increasing in size and number in this meadow.



09/14/2010



7/14/1995

Small creek (Beaver Creek) south of
Battle Highway at Windy Point

1995 vs. 2010

Stream channel width has
decreased and willows and sedges
have increased.

Also, note the encroachment of
lodgepole pine into the meadow
in the background of the photo at
right.



09/20/2010



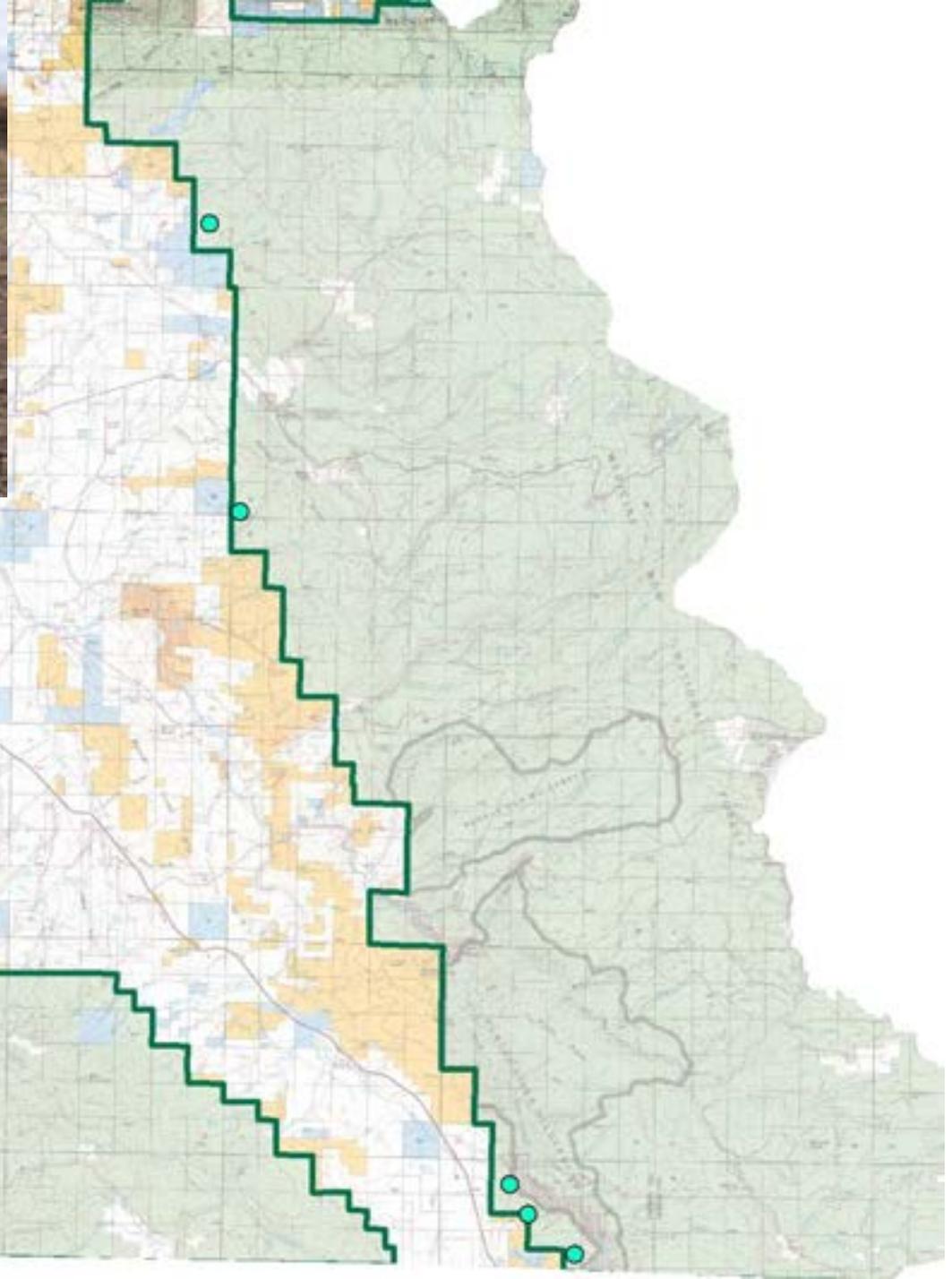
Views of Hog Park in 1955 and 2012

Willow cover in riparian areas and wetlands has increased substantially and so has conifer cover.



Same location in Hog Park in 1960
and 2012.





Working with the SER Conservation District, we have improved 5 spring developments on the Snowy Range in the past 6 years.

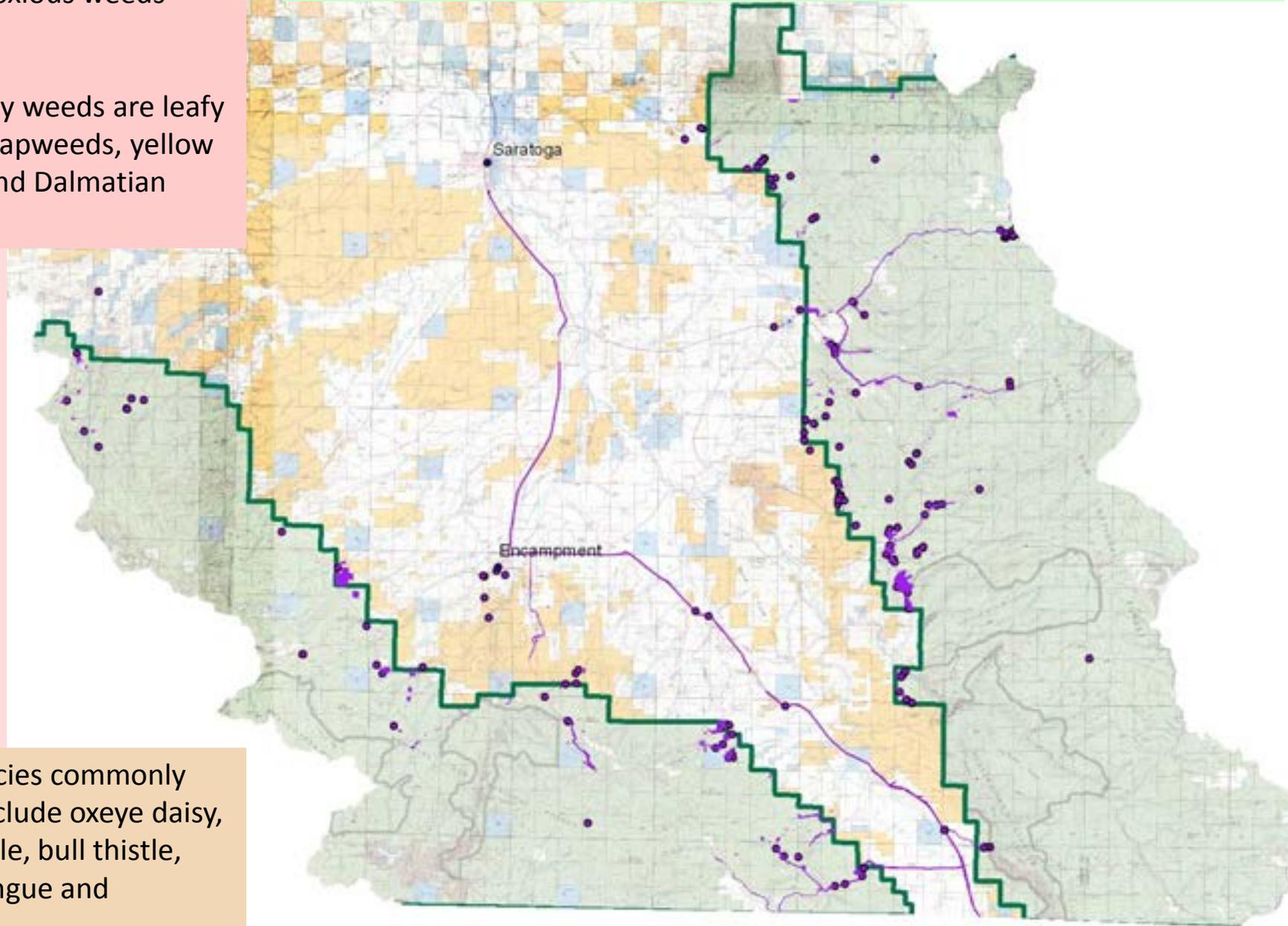
Noxious Weeds



Noxious Weed Treatment Sites on Brush Creek/Hayden District 2003-2012

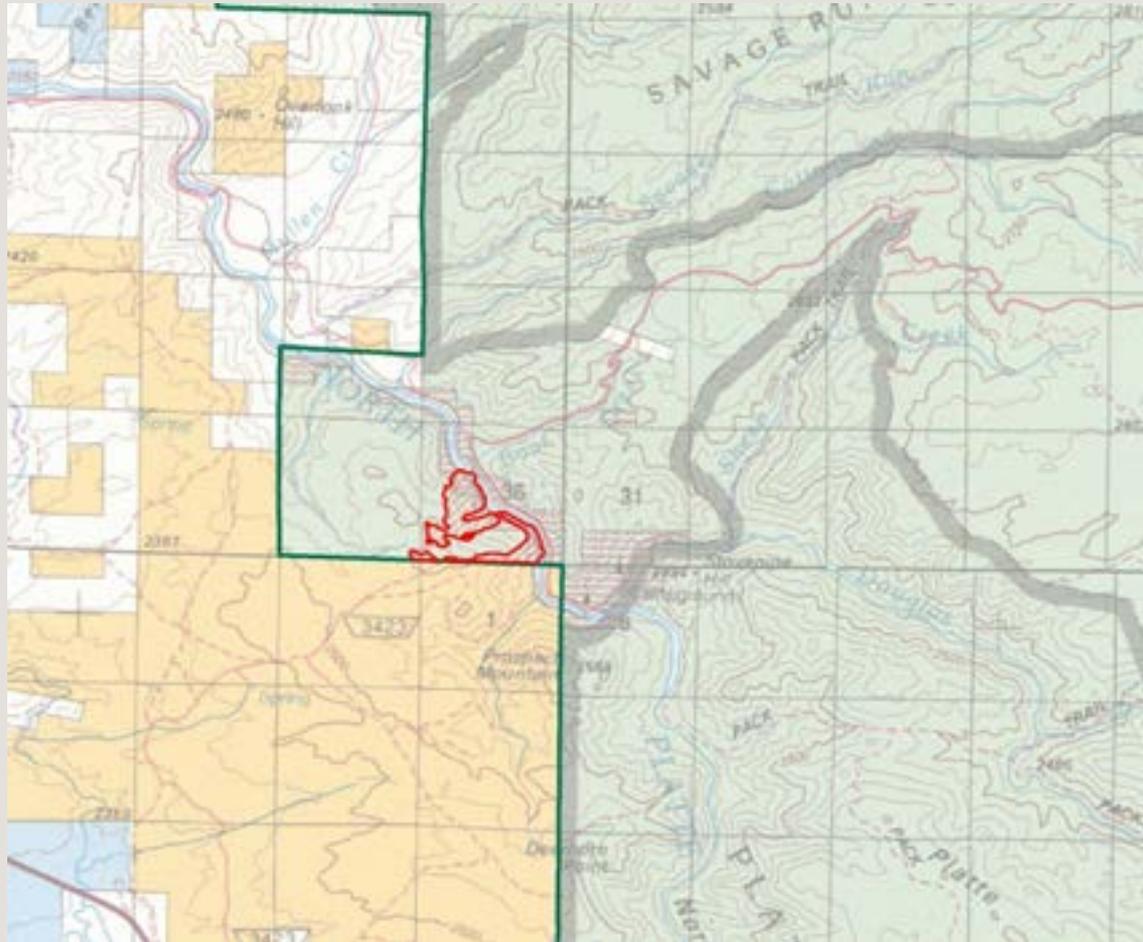
Brush Creek/Hayden District currently treats about 450 acres of noxious weeds each year.

Top priority weeds are leafy spurge, knapweeds, yellow toadflax and Dalmatian toadflax.



Other species commonly treated include oxeye daisy, musk thistle, bull thistle, houndstongue and whitetop.

Future Vegetation Treatment Projects in Shrublands, Aspen or Riparian Areas



The only shrubland project within the PVHP area that is through National Environmental Policy Act (NEPA) analysis and ready for implementation is a small prescribed burn in the Prospect Mountain area.



There are out-year plans for more prescribed burning that will involve shrublands and encroached aspen stands.

Monitoring and administration of livestock grazing will continue in order to sustain improvements in both riparian areas and uplands.

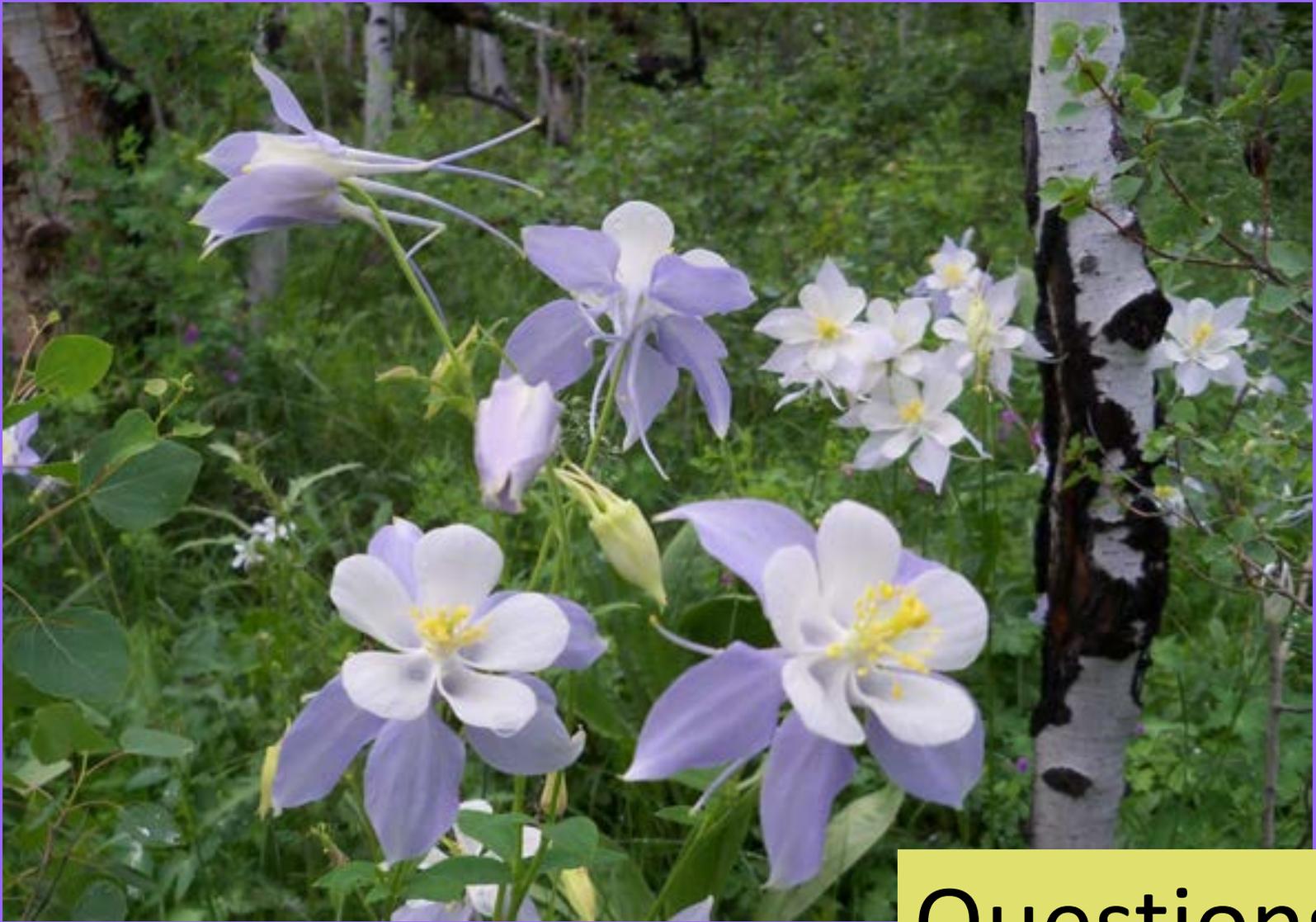


Spring development improvement projects and fence reconstruction will continue as funds and manpower permit. Reconstructed fences will meet wildlife-compatible height and wire spacing standards.



We are removing old fences that are no longer needed for livestock management. In the past three years we removed approximately 2.6 miles of fence, and we would like to remove another 4 miles in the next few years.





Questions?