2016 Annual Operating Instructions
Plateau Farms LLC #4572
Salmon/Pole/Champion #40500, Owl Creek #40700 & Fisher Creek #46900
S&G Allotments

1: INTRODUCTION:

Permitted Use:

Allotment	Numbers	Season	Head Months
Owl Creek # 40700	850 e/l	07/06 - 07/30	699
Salmon/Pole/Champion (SPC) # 40500	850 e/l	08/01 - 08/20	559
	950 e/l	06/11 - 08/20	2218
	1725 dries	08/21 - 10/20	3459
	1725 dries	08/21 - 10/20	3459
		SPC Total HMs	*9695*
Fisher Creek #46900 Tempory Grazing Permit #4607	870 e/l	06/13 - 07/02	572

Authorized Use: Upon payment of fees, you are authorized to graze as follows:

Allotment	Numbers	Band	Approximate Season*	Head Months
Owl Creek	850 e/l	2	07/01 - 07/25	699
Salmon / Pole / Champion	850 e/l	2	07/26 - 08/08	391
Driveway Trail to State Section	870 e/l	3	06/05 - 06/07	86
Salmon / Pole / Champion	870 e/l	3	06/11 - 06/12	57
Fisher Creek	870 e/l	3	06/13 - 07/02	572
Salmon / Pole / Champion	870 e/l	3	07/03 - 07/09	200
Salmon / Pole / Champion	870 e/l	3	07/13 - 08/09	801
Salmon / Pole / Champion	1600 dry ewes	1	08/11 – 09/15	1894
Salmon / Pole / Champion	1600 dry ewes	1	09/21– 10/10	1052
Fall Driveway Trailing	1600 dry ewes	1	10/11 - 10/15	263
Driveway Trail to State Section	1600 dry ewes	2	08/12 - 08/13	105
Salmon / Pole / Champion	1600 dry ewes	2	08/20 - 09/15	1420
Salmon / Pole / Champion	1600 dry ewes	2	09/21 – 10/11	1105
Fall Driveway Trailing	1600 dry ewes	2	10/12 - 10/16	263
(Owl = 699 HMs, SPC = 7637 HMs, Fisher = 572 HMs)				

*These dates are approximate, and are subject to change. Actual on-dates, off-dates, and grazing rotations will be determined on the basis of range readiness within the permitted dates, utilization, truck availability, presence of wolves, or other resource considerations as deemed necessary by the authorized Forest Officer. Such changes will typically be made in consultation with the permittee(s). Actual dates will be determined as the season progresses to avoid areas frequented by wolves.

Permitted Livestock Brand:

-II-

2: COMPLIANCE:

This AOI is made part of your Term Grazing Permit consistent with Part 1, Item 3 and Part 2 Item 8(a) of the General Provisions and Requirements. Your compliance with these instructions is essential for the proper management of National Forest System lands. Failure to comply with the terms and conditions of your permit and these instructions may result in issuance of a notice of non-compliance with the terms of your grazing permit.

Permittees with livestock in rested units, grazing units outside the season of use, and grazing areas not authorized, will be held non-compliant with the terms and conditions of their Term Grazing Permit. Such non-compliance may result in billing for excess use, permit modification / cancellation, or other actions as provided in FSH 2209.13.

Situations may develop during the grazing season which require modifications to these instructions. If this becomes necessary, or if you cannot comply with some part of these instructions, contact the District Ranger and obtain approval before initiating changes or deviating from these instructions.

All livestock feed or straw brought on to the forest is required to be certified weed free.

3: BILLING:

The 2016 cost per Head Month for sheep is $.42 per head month. A Bill for Collection will be mailed to you. Grazing fees must be paid by the date specified on the Bill for Collection to:

USDA Forest Service c/o Citibank
PO Box 301550
Los Angeles, CA 90030-1550

Confirmation of payment through the "lock box" process must be received before livestock can enter NFS lands.

4: LIVESTOCK MANAGEMENT:

2016 Rotation:

Unit/Area	Approximate Rotation*
Ewe/Lamb Band #2 (herders – Alfredo & Jonathon)	
Owl Creek	Contact Kurt Krapfl (622-0080) a few days prior to unloading
	07/01 - Depending on wolf activity, unload at the bridge at Silver Creek. Immediately trail to Owl Creek Allotment.
Salmon	07/26 - Over Galena to Salmon River Unit grazing Camp Creek then to the higher areas of the drainage until shipping
Private	08/09 to 08/10 - Ship lambs (approximate dates)
Ewe/Lamb Band #3 (herders - Alehondro & Aveere)	

Trailing	06/05 – 06/07 Trail on sheep driveway
School Section**	On school section until 06/10 or 06/11
Fisher Creek	Head to lower 4th of July Creek for one night, for access into Fisher Creek S&G Allotment. Move to Fisher Creek 06/13. • (See additional requirement in Section 8: Permittee, Herder or Camp Tender Instructions)
	07/02 - off Fisher, and overnite in 4th of July Creek
Milky/Champion	Milky Creek / Champion will be grazed for approximately seven days starting 07/03. • Any occurances of sheep found on the Warm Creek Allotment could prompt compliance action. • Avoid all moderate and high severity burned areas of the Valley Road Fire shown on the map provided to you prior to entering the Milky Creek/Champion area. • Avoid all aspen stands within the fire perimeter. • Avoid all south slopes within the fire perimeter. • Avoid conifer regeneration trampling within the fire perimeter. Then heading back out the same general way as entered, avoiding areas already trailed through or any portion that has been previously grazed.
School Section**	07/10 – 07/12
Horton Peak Upper Pole Creek	07/13 - Head to Lost Creek, Taylor Flats upper troughs, Horton Peak, Twin Creek, Upper Pole, Germanian and Three Cabins, grazing high on the face of the hills.
Private	08/09 to 08/10- Ship lambs (approximate dates)
Dry Band #1	
Valley Rd/Two Trees/Little Springs	08/11 back on the forest with band of 1600 dries to Valley Road, Two Trees, Little Springs areas
Private	09/16 to 09/20 - Shear lambs (approximate dates)
	09/21 back on forest to Camp Creek, below Chemeketan, Lower Salmon River area, North Cut Off Rd, ATV trail flat
Driveway	10/11 -10/15 - Fall Trailing
Dry Band #2	
Trailing	08/12 - 08/13 Trail on Sheep Driveway
School Section**	08/14 – 08/19
Private	09/16 to 09/20 - Shear lambs (approximate dates)
Taylor Flats Little Springs	Graze lower Taylor Flats heading to Little Springs, grazing areas previously not grazed by band 1.
Driveway	10/12 – 10/16 - Fall Trailing

*When utilization is met in each unit or area sheep are to be moved on to the next scheduled unit or area, or removed from the allotment. This standard can be met with once-over grazing.
** No authorization to graze State Lands (School Section) is implied. This unit is shown in the grazing rotation schedule for the purpose of continuity.

Pole Creek Meadow Section 19 & 30 will be rested once every three years.

2010	2011	2012	2013	2014	2015	**2016**	2017	2018
rested	grazed	grazed	rested	grazed	grazed	**rested**	grazed	grazed

You will be responsible for monitoring livestock move thresholds or "triggers" during the grazing season. These "triggers" will assist you in ensuring that end of season utilization standards are not exceeded. The Sawtooth NRA range staff will conduct spot checks as necessary. Typically, "triggers" will be the standard(s) listed below in section 6, "Standards and Guidelines". It is strongly suggested that livestock be moved before utilization standards are reached. This will help to prevent forage utilization in excess of standards, allowing for time to clean the unit of strays.

Please realize that it is in your best interest to herd sheep throughout useable areas in the currently authorized pasture. **Use of riparian areas needs to be carefully monitored by you.** If sheep are allowed to concentrate in riparian areas and around water developments, utilization standards will likely be reached prior to the scheduled pasture move or "off-date". This may result in directed early pasture moves or early removal of livestock from the allotment.

5: STANDARDS AND GUIDES:

Proper Use Standards:
Your Term Grazing Permit specifies maximum allowable utilization levels applicable to your allotment. To comply with the Amended 2012 Sawtooth FLRMP, changes to some of the allowable use levels have been implemented; specifically when the riparian goals and objectives are not being met. When utilization estimates indicate that allowable use levels have been reached in the pasture currently being grazed, livestock must be moved to the next scheduled pasture, or removed entirely from the allotment regardless of any time remaining in the grazing season schedule.

You are responsible for tracking forage use levels and complying with utilization standards. For your convenience, the Salmon/Pole/Champion, Owl Creek and Fisher Creek S&G Allotments maximum allowable forage utilization levels under the Sawtooth FLRMP (forest Plan) are listed below.

Riparian Areas: All Creeks on Salmon/Pole/Champion – 6" utilization standard
Water sedge (Carex aquatilis) or Nebraska sedge (Carex nebraskensis) will be the key species measured to determine riparian (greenline) utilization.
Utilization Standards for Riparian (FLRMP/Forest Plan)

- Forage Utilization standards for riparian areas shall not exceed 30% use of most palatable forage species, or must retain a minimum 6 inch stubble height of hydric greenline species, whichever occurs first. (SPC Decision Notice)

Riparian Areas: All Creeks on Fisher Creek – 4" utilization standard
Water sedge (Carex aquatilis) or Nebraska sedge (Carex nebraskensis) will be the key species measured to determine riparian (greenline) utilization.
Utilization Standards for Riparian (FLRMP/Forest Plan)

- Maximum 45 percent use or retain a minimum stubble height of 4" on hydric greenline species, whichever occurs first. (Standard RAST01). This standard applies to the streams that are moving towards or meeting Forest Plan vegetation desired conditions. Streams not meeting these conditions will fall under the following standard.
- Forage Utilization standards for riparian areas shall not exceed 30% use of most palatable forage species, or must retain a minimum 6 inch stubble height of hydric greenline species, whichever occurs first, *when riparian goals and objectives are not being met* (Management Area 2, Standard 02143).

Riparian Areas: All Creeks on Owl Creek – 4" utilization standard

Water sedge (Carex aquatilis) or Nebraska sedge (Carex nebraskensis) will be the key species measured to determine riparian (greenline) utilization.
Utilization Standards for Riparian (FLRMP/Forest Plan)

- Maximum 45 percent use or retain a minimum stubble height of 4" on hydric greenline species, whichever occurs first. (Standard RAST01). This standard applies to the streams that are moving towards or meeting Forest Plan vegetation desired conditions. Streams not meeting these conditions will fall under the following standard.

Upland Vegetative Cover Types: all allotments / units – Sagebrush / Fescue
Bluebunch wheatgrass (Agropryon spicatum) and Idaho fescue (Festuca idahoensis) will typically be the key species measured to determine upland utilization, though other species may be measured to estimate utilization at the discretion of the Forest Officer.

1. **Early season grazing** (ie: through early July): **40% use** or retain a minimum of 3-inch stubble height for Kentucky bluegrass, a 6-inch stubble height for Bluebunch wheatgrass, and a 2-inch stubble height for Idaho fescue, (Standard RAST01).
2. **Late season grazing**, after seed ripe conditions: will not exceed **50% use**, (Standard RAST01).

Note: The utilization percentages represent the maximum year end use that will be allowed based on current livestock management practices. This standard can be met through "once-over" grazing.

6: IMPROVEMENTS:

All improvements for which you have maintenance responsibility are listed in Part 3 of your Term Grazing Permit.

Improvement maintenance must be completed prior to livestock turn out. If it is found that maintenance has not been completed, and the responsible permittees livestock are present on the allotment or unit, the permittee may be billed for unauthorized use and / or permit action may be taken for non-compliance.

When improvements have been maintained, please call the Stanley Ranger Station and report that maintenance has been completed. If verification is not received from the permittee prior to the allotment "on-date", follow-up inspections may be made. If it is found that maintenance has not been completed, and the responsible permittee's livestock are present on the allotment, the permittee may be billed for unauthorized use and / or permit action taken for non-compliance.

Permittee (or authorized agent of permittee) use of ATVs and motorcycles outside designated routes shown on the Sawtooth National Forest/Sawtooth National Recreation Area Motor Vehicle Use Map is limited to that required for allotment management operations such as maintenance and repair of range improvements, and distribution or retrieval of salt during or immediately after the authorized grazing season. Limited additional authorization is provided to facilitate sheep herder travel to and from camps in the fall while permitted livestock are still grazing on the Salmon Pole Champion Allotment.

If an allotment is in non-use status, the permittee is still responsible for improvement maintenance.

No ground disturbing activities may be conducted by the permittee or their personnel on National Forest System lands without prior approval from the authorized Forest Officer.

Any plans to reconstruct or build new improvements on the Forest should be coordinated with the range staff.

7: PERMITTEE, HERDER or CAMP TENDER INSTRUCTIONS:

Please notify SNRA range staff at 208-774-3000 before allowing your livestock to enter the SPC, Owl Creek and Fisher Creek Allotments.

You or your herd manager will provide sufficient riders or herders to obtain proper distribution, protection, and management of sheep on the allotment as required by the Rangeland Project Decision, Allotment Management Plan, or Annual Operating Instructions.

Permittees with livestock in rested units, grazing units outside the season of use, and grazing areas not authorized, will be held non-compliant with the terms and conditions of their Term Grazing Permit. Such non-compliance may result in billing for excess use, permit modification / cancellation, or other actions as provided in FSH 2209.13.

You will be required to provide a copy of these Annual Operating Instructions and map to each herder, and to **ensure each herder understands** the written contents. Evidence of failure to follow these requirements may result in action against your permit. Some key requirements relating to herd management are reiterated as follows.

Fisher Creek and Milky Creek – Mapping Requirements

In-season information shall be reported by the permittee to the Forest Service. A range technician from the Sawtooth NRA staff will meet with the permittee's and / or herder to provide training on how the information is to be shown on the maps. Failure to provide this information within two weeks after leaving Fisher Creek S&G Allotment will result in issuance of a notice of non-compliance (NONC) for failure to comply with terms and conditions of the grazing permit.

The following information for Fisher Creek and Milky Creek will be provided to the Forest Service by the permittee.

1. Actual route taken by the herd (line drawing on the map).
2. Herder camp sites and the dates occupied.
3. Overnight bedding locations and the date occupied.
4. Precise stream crossing and watering locations and the dates used.
5. Nooning locations and the dates occupied.
6. Using once over grazing, graze within in the lower end of the allotment as shown on the map.

(Note: Cattle will be on the Warm Creek Allotment - Champion Creek starting 06/16 for 10 days.)

Valley Road Fire Restrictions – Salmon/Pole/Champion & Fisher Creek

1. Avoid all moderate and high severity burned areas of the Valley Road Fire shown on the map provided to you prior to entering Fisher Creek and Milky Creek.
2. Avoid all aspen stands within the fire perimeter, and do not bed in aspen stands within the fire perimeter.
3. Avoid south facing slopes as much as possible.
4. Avoid nonnative plants as much as possible, (specifically cheatgrass and tumble mustard, see page 13 & 14 for picture and description).
5. Be sure your herder is aware of these requirements.

Fish Restriction Dates

Mitigate, through avoidance, the adverse effects of livestock access or activities that may result in trampling of redds or disturbance of spawning or reproductive staging of Endangered Species Act (ESA) listed fish species (Standard TEST25).

1. Preceding fall trailing over Pole Creek on Road 194, a spot check by the FS may be made for redds 300 feet upstream and downstream of the culvert. If redds are present, physical barriers or specific herding will be used to prevent sheep access to the redds during trailing.
2. The following restrictions apply to SPC, based on initiation of spawning for TES fish species:
    a) *Pole Creek (below Twin Creek) and Salmon River (below Chemeketan CG):*
        - *Off August 1 (chinook salmon)*
        - *Watering only at turbulent reaches after August 15 (bull trout)*
    b) *Champion, Fourth of July, Taylor, Twin, Rainbow, Grandprize, Germania, Galena, Three Cabins and Camp Creeks:*
        - *Watering only at turbulent reaches after August 15 (bull trout)*

North Cut-Off Road directions

Once-over grazing will be allowed in the Pole Creek Burn / North Cut-Off Rd. The burn area will be evaluated on a yearly basis by agency personnel to determine range readiness and grazing limitations for subsequent seasons.

1. *Herder wagon*
    a) *Set up adjacent to the main Pole Creek Cut-Off Rd.*
    b) *Do not travel or set up on any closed or nonsystem / user created routes or establish any new routes within the the Pole Creek Burn.*
    c) *Do not set up near aspen or forested areas within the Pole Creek Burn area.*
2. *Sheep bands*
    a) *Graze / bed only in the open flat areas.*
    b) *Do not graze or bed down near aspen or forested areas within the Pole Creek Burn area.*
    c) *Try to avoid nonnative plants, specifically cheat grass may be in the area.*
    d) *Once-over grazing*

1996 Owl Creek Allotment EA mitigtion measures

1. Sheep grazing will be restricted in high cirque basins and slopes over 9,000 feet elevation to protect sensitive alpine plant communities and avoid forage conflicts with mountain goats
2. Titus Lake basin and upper Owl Creek basin will be closed to sheep entry
3. A buffer between Russian John and Silver Creek will be closed to grazing for the benefit of wildlife
4. Bridges should be used for stream crossings as much as possible

Sheep grazing

Avoid trailing or grazing in aspen stands which have been treated to enhance aspen regeneration.

Grazing is not authorized beyond the upper watershed boundary of the Salmon River drainage into the Big Smokey Creek drainage. This has been noted as a problem by Fairfield Ranger District personnel in the past.

The Pole Creek Resource Natural Area (Pole Creek Guard Station) is closed to grazing. The boundary fence should be readily identified and easy to avoid.

Do not allow sheep to be shaded or bedded within 100 yards of all creeks. If this is not reasonable due to topography, ensure that the sheep are as far back as possible from the creek.

Graze rather than trail to water, and if possible, water sheep at different locations each time.

Only one night/one time use of bed grounds is allowed.

Route sheep to avoid steep slopes with loose soil, watershed rehabiliation sites, active gullies and snowbank areas.

Only open or loose "once-over" grazing will be allowed, with the exception of designated sheep driveways, travel routes, or where specifically authorized. (Standard RAST07)

Sheep may be trailed over watershed divides above 9,000 feet where suitable, as long as they are loose herded and not allowed to bed or graze.

Do not bed sheep within 200 yards of designated campgrounds, trails, trailheads or maintained roads.

Salting

Sheep will be salted only at bed grounds. Salt will be placed in containers and moved with the sheep. Tarps and hollowed logs meet the criteria for salting in containers.

Loose salt must be in containers, moved with the sheep and salted at bed grounds only. Do not salt in areas above 9,000 feet, or in cirque basins at this elevation.

Do not place salt within 100 yards of any watering area or meadow unless you receive prior approval. This includes seeps, water troughs, and creeks. Salt will be removed from areas where the maximum allowable use levels have been reached or at the end of the grazing season.

Herder Camps

New herder camps must not be located in perennial or intermittant stream Riparian Conservation Areas (RCAs).

Each camp will be kept clean, which means litter will be picked up and either hauled away or burned. Only combustible items may be burned.

Herder camp use will not exceed five days time in one location unless prior permission is obtained from the appropriate Forest Service official. Camps should be located to avoid conflict with other Forest users.

When pack and saddle stock are tied at camp, they are to be high-lined, picketed, or hobbled. Tying pack or saddle stock to trees at camp is prohibited. Horses used by herders in conjunction with permitted livestock management shall not be staked or picketted within riparian zones.

Sheep Driveway

Fall trailing from Galena Summit to the SNRA south boundary is limited to 5 day duration. Please avoid all traditional campsites when fall trailing on the Wood River Side.

There may be special Ketchum/Stanley Sheep Driveway use instructions pertaining to concerns about spreading spotted knapweed.

Route sheep at least 1/4 mile from Galena Lodge when crossing Gladiator and Senate Creeks. This area is closed for rehabilitation from historic sheep impacts and contains valued wildflower meadows for recreation purposes.

Notify Galena Lodge, Blaine County Recreation District and Robert or Beth prior to trailing past the Galena Summer Trails Project.

Sheep trailing in or out of the allotment to access the Stanley-Ketchum Sheep Driveway will not cross through any stream containing designated critical habitat such as the Salmon River and Frenchman Creek.

Fire

To meet Forest Service requirements, exhaust from camp stoves must be filtered through a spark arrester screen with no larger than 3/8 inch mesh.

Never leave camp fires unattended.

All camps must have a serviceable axe, shovel, and bucket for fire control.

Other

Permittees are responsible for cleaning or repairing all roads and trails damaged by sheep. Immediate action is required.

Promptly remove or bury any sheep that have died within 100 yards or in sight of administrative sites, system roads or trails, corrals or sources of water. If warranted, other methods of removal may be allowed with special permission from the District Ranger.

All lands outside of designated travelways, motorized use shall be prohibited unless otherwise authorized.

By USDA order #04-00-097, all non-pelletized hay, straw or mulch possessed, stored, or transported on National Forest System Lands, in individual bales or containers, must be tagged or marked as weed free, or must have the original and current evidence of weed free certification documentation present. All markings must meet State and / or County standards for certification as weed free.

8: REQUIRED REPORTING:

Fisher Creek and Milky Creek and the Upper Salmon River will require mapping. See page 6.

Enclosed is an actual use record form for the upcoming season. Please use this form to record the time (dates) livestock spend on an allotment as well as other information such as livestock loss, salting, grazing use, resource concerns, improvement needs etc. The grazing use record should be returned to the district office within 30 days after the grazing season.

Please submit requests for credits or refunds before December 31.

9: INSPECTIONS & MONITORING:

Range inspections may be made several times during the grazing season to check maintenance of range improvements, forage utilization, and compliance with the grazing rotation and standard requirements. If you are interested in participating in allotment inspections, please notify the range staff at the beginning of the grazing season.

End-of-season compliance monitoring will be conducted by the SNRA Range Staff. Exceeding end-of-season utilization standards will be regarded as an instance of non-compliance with the terms of your grazing permit. In addition to the potential for permit action, this may further result in the modification of grazing management (including reductions in Head Months or permitted area) until the risk of adverse impacts to habitat is minimized.

10: COORDINATION & COOPERATION:

Questions about what can or cannot be done in reference to defending livestock, harassing wolves, or shooting wolves should be directed to:

- Craig White, IDFG SW Idaho Regional Wildlife Program Mgr. - Nampa, Idaho (208-465-8565)
- Todd Grimm, State Director USDA APHIS Wildlife Services - Boise, Idaho (208-378-5077)
- Sam Kocherhans, Wildlife Services Technician - Ketchum, Stanley & Fairfield (208-681-8792)
- Jason Husseman, Idaho F&G Regional Wildlife Wolf Biologist – Salmon, Idaho (208-756-2271)

Permittees should continue working with their local Wildlife Services representative on depredation issues.

In order to reduce the potential for depredation, the Forest Service recommends that the following procedures be implemented each grazing season:

- Remove sheep and saddle stock carcasses from the area where they will not serve as an attractant to predators. The intent of this recommendation is not to require removal of carcasses from the allotment, but to remove them out of areas currently being grazed or areas soon to be grazed.

Work with IDF&G and Wildlife Services in implementing other effective preventative actions to reduce the risk of depredation.

The Forest Service recognizes that Plateau Farms LLC and Idaho Department of Fish & Game have developed a "Best Management Practice for Separation between Domestic Sheep and Bighorn Sheep" agreement because of the potential for conflict between wild sheep and domestics. In addition to BMP's agreed to in that agreement, we also require the herders conduct regular sightings throughout the day for Big Horn sheep. We also require that the herder make the appropriate contact with the Forest Service or Idaho Department of Fish & Game when a bighorn sheep sighting is reported on or within a minimum of one mile of the Owl Creek, Salmon / Pole / Champion and Fisher Creek Allotments.

11: OTHER:

If you are planning to waive your Term Grazing permit – based on either sale of permitted livestock or base property, please submit this intention to me in writing prior to the transaction.

We look forward to working with you and solicit your cooperation and involvement in bringing about sound range and livestock management practices that will enhance all of the allotment's resources. If you have any ideas or suggestions that will improve the management of this allotment, we would like to hear from you. If you have any questions concerning these Annual Operating Instructions, please call Robert Garcia 774-3014, Beth Bratlie 774-3013 or myself at 208-727-5000.

12: SIGNATURE:

5/19/2016

Kirk Flannigan, Area Ranger **Date**

13: MAPS, FORMS & ATTACHMENTS:

a. Permittee Actual Use Record form (use, losses, costs, etc.)
b. Tumble Mustard Information

2016 Actual Use Record - Plateau Farms LLC
SPC, Owl Creek & Fisher Creek S&G Allotments

See AOI for planned use

Please fill in your actual use by the unit grazed and the number of livestock and dates grazed in each unit.

Unit / Area	Number & Kind of Livestock	Date Entered Unit	Date Left Unit

LOSSES: Indicate number and class of animals lost by cause.

Unit	Kind of Lvstk	Predators	Other Reasons

Days spent maintaining allotment improvements: Name of Improvement:

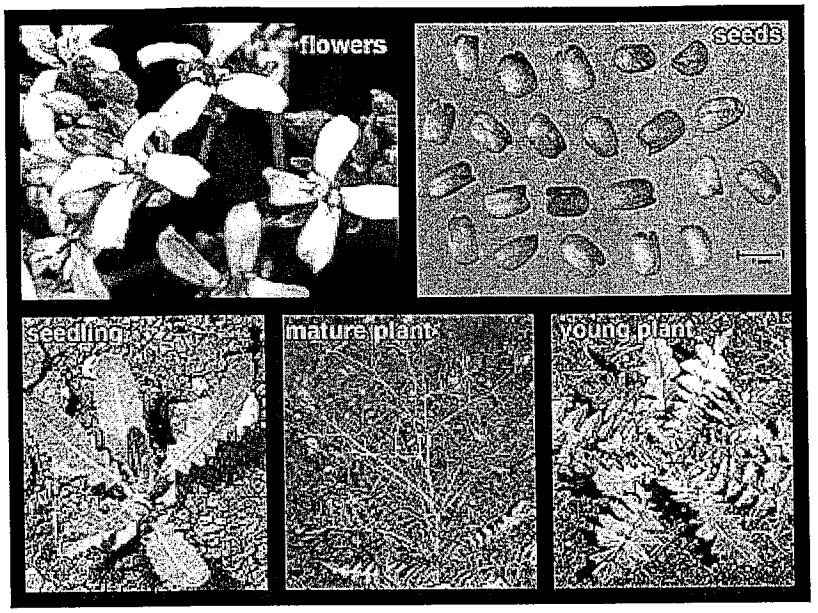
Approximate cost of materials:

Approximate cost to manage livestock on National Forest, including riding, salting etc.:

Signature:______________________________ Date:______________

Tumble mustard

Scientific name: *Sisymbrium altissimum* (Mustard Family: Brassicaceae)



Tumble mustard, also known as Jim Hill mustard, is a broadleaf winter or summer annual and sometimes biennial plant with a highly branched top. Tumble mustard is found throughout California up to an elevation of 8200 feet (2500 m) and inhabits agricultural land and other disturbed sites.

Habitat

Orchards, vineyards, gardens, agronomic and vegetable crop fields, landscaped areas, roadsides, and other disturbed, unmanaged sites.

Seedling

The seedling has very small cotyledons (seed leaves) that are egg shaped to oblong, about 1/12 to 1/5 of an inch (2–6 mm) long and about 1/25 to 1/12 of an inch (1–2 mm) wide. They have no apparent stem. The first true leaf is slightly larger than the cotyledons, dull green, coarsely toothed, has an elongate football shape, and a few hairs along the edge and on the upper surface. Later leaves are similar to the first, but grow increasing larger and have shallow-toothed margins. Leaves are alternate to one another along the stem.

Young plant

Tumble mustard exists as a rosette until the flower stem develops at maturity. Leaves at the base of young winter rosettes are coarse and deeply lobed. Leaves near the top are smaller and deeply cut to form threadlike divisions. Although the rosette leaves of London rocket, *Sisymbrium irio*, and tumble mustard have similarities; those of tumble mustard have terminal lobes that are more triangular, while those of London rocket are egg shaped.

Mature plant

Stems are erect and branched. The plant can reach a height of 5 feet (1.5 m) tall. The related London rocket only reaches 1-3/5 feet (0.5 m) in height. Leaves at the base of tumble mustard (rosette leaves) are coarse and deeply divided, or lobed to compound (fully divided into separate leaflets), have stalks, and are about 6 inches (15 cm) long.

Upper leaves are stalkless, smaller than the lower leaves, deeply cut to form threadlike divisions, and do not clasp the stem. Long unbranched hairs sparsely cover leaves. In contrast, London rocket's upper leaves are oblong and have two spreading lobes at the base. Flixweed, *Descurainia sophia*, can be distinguished by its branched hairs compared to the unbranched hairs of tumble mustard. Also flixweed has very finely divided leaves whose leaflets are often finely divided once or twice again (tumble mustard leaves are divided only once).

Russian thistle, *Salsola tragus*, has leaves that graduate into rigid, spine-tipped scalelike structures (bracts) in the flower head, and while in tumble mustard, upper leaves remain threadlike.

Flower

Flowers bloom from April through September. Tiny, pale yellow (rarely white) flowers with four petals cluster on thick, spreading stalks.

Fruit

The fruit, produced on a short stalk, is a one-ribbed, narrow pod about 1/24 of an inch (1 mm) wide and 2 to 4 inches (5–10 cm) long. Pods point somewhat upwards.

Seeds

Seeds are oblong, roughly 1/24 of an inch (1 mm) long, half as wide, and brownish yellow to dull orange.

Reproduction

Reproduce by seed. Mature plants tend to break off at the base and tumble in the wind, which shakes loose and spreads seeds.