

**Inventory for Mardon Skipper, *Polites mardon*,
Columbia River Gorge National Scenic Area
and Mt. Hood National Forest**

**Report to the Interagency Special Status Sensitive Species Program
FY 2006 and 2007 Inventory and Conservation Planning Project**



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Executive Summary

The mardon skipper (*Polites mardon*) is a USDA-Forest Service sensitive species and a Washington State endangered butterfly. It occurs in the Pacific Northwest as disjunct populations within Washington, Oregon, and California. This project surveyed potential mardon skipper habitats at 21 sites on the Columbia River Gorge National Scenic Area and at 48 sites on the Mt. Hood National Forest in 2006. No mardon skippers were found within the project area. Meadow habitat at several sites located on the Mt. Hood National Forest is similar to habitat at known mardon skipper sites on the Mt. Adams Ranger District, Gifford Pinchot National Forest, Washington. These sites are recommended for additional surveys in 2007.

Our most important determination was that sheep-camp allotment maps, circa 1920-1950s, serve as a valuable tool in locating potential mardon skipper habitat. The allotment maps indicate historic “natural openings” or moist upland meadows that are less detectable using recent aerial photography, due to fire cessation and conifer encroachment. Survey areas for 2007 are prioritized by habitat most similar to mardon skipper sites on the Mt. Adams Ranger District. The current survey protocol for mardon skipper recommends three site visits per year over a two-year period to determine presence or absence for this species. We concur with these survey guidelines. We recommend contracting second-year surveys on the Mt. Hood National Forest in order to have dedicated observers present during the short mardon skipper flight period, ranging two to six weeks. With funding, the CRGNSA handled its six priority areas in 2007.



Introduction

The mardon skipper (*Polites mardon*) is a small, non-migratory butterfly currently found at four geographically disjunct locations in Washington, Oregon, and California (Potter et al. 1999). Due to the mardon skipper's small population, limited distribution, and recognized threats, the species is federally designated as a candidate species for listing under the Endangered Species Act. The mardon skipper was also listed in Washington as a state endangered species in 1999 (Potter et al. 1999), and is currently listed as a USDA Forest Service sensitive species.

There is a large range gap in the known distribution of the mardon skipper starting at the Columbia River gorge and extending south to the southern Oregon Cascades. We do not know if the mardon skipper is present in this gap area due to limited past survey efforts for butterflies in general. We suspect that the species may be present in this region but is currently not documented. The mardon skipper is a species that is easily overlooked or confused with other skipper species.

In an effort to learn more about the abundance and distribution of the mardon skipper, we focused our survey efforts in geographic areas that are in relatively close proximity to known occupied sites located near Mt. Adams on the Gifford Pinchot National Forest in Washington.

The objectives of the 2006 survey were: (1) identify potential mardon skipper habitats in the project area using aerial photographs, topographic maps, and other data sources, (2) survey for mardon skipper presence at locations with potential habitat using established survey protocols, and, (3) identify high-priority sites for future survey efforts. Additionally, all survey data collected were documented in the interagency special status and sensitive species FAUNA database.

Inventory Area

Our project area included survey sites within the Columbia River Gorge National Scenic Area (CRGNSA) and the Mt. Hood National Forest. Survey sites in the inventory area are located approximately 10 – 50 miles south of documented mardon skipper sites near Mt. Adams. Mardon skippers are known to be associated with native bunch grasses (*Festuca* species); although, the habitat requirements for the species are not fully understood (Potter et al. 1999).

In the Mt. Adams area, mardon skippers are associated with small, montane meadow habitats in the grand fir zone (Topik 1989). Most sites are located between Mt. Adams Wilderness and South Prairie. Occupied sites range from 1,800 to 5,600 feet in elevation, although most sites have been found at 3,000 – 4,000 feet elevation. Occupied habitats include relatively dry meadows with a dominant ground cover of *Festuca* grasses, to mesic or riparian sites with a dominant ground cover of pasture grasses (*Poa* species,



General range of the mardon skipper (Pyle 2002).

Bromus species) and forbs.

Because mardon skippers have been found in a variety of grassland habitats across their range, we selected a wide assortment of open habitats, ranging from dry meadows with a dominant ground cover of fescue and non-native grasses, mesic or riparian sites with a dominant ground cover of pasture grasses, oak-pine savannah, to wetland meadows with drier, bunchgrass hummocks and edges. Ranges of elevation bands were represented. Survey sites in the CRGNSA ranged from 40 to 3,000 feet elevation, while the Mt. Hood sites began in the mid-range from 1,500 upwards to 6,000 feet. Active cattle allotments occur at survey sites on the Mt. Hood National Forest. Introduced grasses dominate all sites except Brook Meadow within The Dalles Municipal Watershed and Stacker Butte, which is a part of the Columbia Hills Natural Area Preserve. Stacker Butte has a 300-acre plant community comprising Idaho fescue, houndstongue, and hawkweed.

Methods

Site Selection

We canvassed experienced career botanists, biologists and biological science technicians, Milestone native-plant nursery, and lepidopterists to develop a list of potential survey sites, which also included native grass-seed collection sites. We reviewed aerial photographs and USGS topographic maps to identify potential meadow and grassland sites. We reviewed *An Atlas of Washington Butterflies* (Hinchliff 1996), and other sources for documented locations of Sonoran skipper (*Polites sonora*) and other skipper species as potential indicators for mardon skipper habitat. Several historic sites (Bear Springs, Horsethief Meadow, and Larch Mountain) for Sonoran skipper have been documented in the inventory area. Appendix A lists our prioritization schema for site selection. In addition, we visited several known mardon skipper sites near Mt. Adams during the mardon flight period to acquire a search image for habitat features and forest types.

Training and Survey Personnel

Throughout the project, we worked with biologists experienced with mardon skipper surveys and skipper identification. Survey staff attended “hands-on” training sessions at known mardon skipper sites in Washington. Inexperienced surveyors worked with experienced surveyors to gain a knowledge and understanding of the survey protocol and identification field marks. By the time Mt. Hood National Forest surveys occurred, new surveyors had a good measure of training and experience. In total, four contractors, one USFWS and eleven Forest Service employees conducted surveys. Eight Americorps members from the NW Service Academy in Trout Lake, WA accompanied surveyors during June 20th-23rd.

Survey Methods

We used the mardon skipper survey protocol developed by Seitz and others (2006). Sites were surveyed extensively by walking through the area and recording the number of skippers observed. At most sites, one or two individual skippers were captured with an insect net and examined in a viewing jar for positive identification. When new surveyors first encountered look-alike Sonoran skippers, they photographed the ventral hind-wing

pattern for species confirmation from one of our experienced surveyors. All skippers captured for identification were released live at the capture sites. Close-viewing binoculars were also used to aid in positive identification of individual butterflies. General observations about habitat such as nectar plants present and grass communities were noted.

Mardon skippers have a relatively short flight period (approximately two to six weeks) during which the adult form is present and active. The timing of emergence varies between sites and tends to be later at higher elevations (Potter et al. 1999). Surveys at low-elevation sites in the CRGNSA were conducted during late April – to mid June, while surveys at higher elevation sites on the Mt. Hood National Forest were conducted during June and July. Table 1 displays the survey timeline as well as the dates that skipper look-alikes were identified.

Results and Recommendations

Skipper Species Documented

We surveyed potential mardon skipper habitats at 21 sites on the CRGNSA and at 48 sites on the Mt. Hood National Forest (Appendices B and C). No mardon skippers were found within the project area. Sonoran skippers were documented at one site in the CRGNSA (Table 1, High Valley Farm). This was a new site record for this species. Seven new Sonoran skipper sites and one old site (Bear Springs) were recorded on the Mt. Hood National Forest (Table 1). Juba skippers (*Hesperia juba*) were documented at two sites on the CRGNSA (Table 1, Dog Mtn Trailhead and Marsh Hill), one of which is a possible range extension for this species. The location of these two skipper species is significant because both Sonoran and juba skippers are sympatric with mardon skippers at known sites near Mt. Adams. Data from Appendices B and C were entered into the FAUNA database.

Survey Timing

Weather was cool and wet during May to early June for our project area, which extended survey opportunities in the CRGNSA. Temperatures increased from mid-June through July. The flowering phenology quickly caught up with normal weather patterns by July during Mt. Hood National Forest surveys (D. Ross, personal conversation). At several sites like Cooper Spur and the smaller of two Eightmile Meadows, however, we likely missed our mark on survey timing, and surveyed these sites too late in the season to detect mardon skippers. At some sites, Sonoran skipper flights appeared earlier than expected and concurrent to the mardon skipper's expected flight period (e.g. Bear Springs). This was a common theme across the Pacific Northwest according to ISSSSP notes from conference calls.

Based on our observations of mardon skippers and plant phenology at known sites in Washington, we suggest that the potential flight periods for CRGNSA and Mt. Hood National Forest sites coincide respectively with Thurston County, WA and Mt. Adams sites by elevation. In the CRGNSA, the survey window for mardon skipper is early May

to early June. On the Mt. Hood, the survey window is early June for sites at 1,500 – 3,000 feet elevation and extends into mid-July for sites at 4,000 - 6,000 feet elevation.

Table 1. Chronology of 2006 Surveys.

Columbia River Gorge National Scenic Area –Washington and Oregon		
Date	Activity	Comments
Apr 19-Jun 19	Surveys on CRGNSA, WA and OR	John Davis and Vince Harke, lead experienced surveyors
May 10	Training (180'elevation) Olympia, WA	Mardon skipper flight period at Scatter Creek
May 19	Survey visit (800'elevation) Marsh Hill, OR	Juba skipper-1 (John Davis)
May 23	Survey visit (300'elevation) Dog Mtn Trailhead, WA	Juba skipper-1 (John Davis)
Jun 1	Training (1870' elevation) Holmes Cr., WA	Mardon skipper flight period commences at Conboy National Wildlife Refuge
Jun 5&8	Survey visit (950'elevation) High Valley Farm, WA	Sonoran skipper- 4 on Jun 5 (John Davis) & 2 on Jun 8 (John Davis & Vince Harke)
Jul 2	Visit mardon sites Mt. Adams Rgr District, WA	Mardon skipper flight period peaks at 3200'elevation (John Davis)
Jul 8	Visit mardon sites Mt. Adams Rgr District, WA	Mardon skipper flight period past its peak at 3200'elevation (CJ Flick)
Jul 14	Visit mardon sites Mt. Adams Rgr District, WA	Mardon skipper flight period almost completed across a range of elevations (John Davis & Dana Ross)
Mt. Hood National Forest – Oregon		
Date	Activity	Comments
Jun 7-Jul 27	Surveys on Mt. Hood National Forest	Completed by CRGNSA & Mt. Hood National Forest biological technicians
Jun 20-23	Surveys at mid-elevation sites	Americorps members assist surveyors
Jun 21	Survey visit (3200'elevation) Camas Prairie East	Sonoran skipper-2 (Ryan Gerstenberger)
Jun 28	Survey visit (3000'elevation) Bear Springs	Sonoran skipper-20, Historic Site (Ryan Gerstenberger)
Jul 10-13	Surveys on Mt. Hood National Forest	Contract with Dana Ross, lepidopterist
Jul 11	Survey visit (3200'elevation) N. Arm Timothy Lake	Sonoran skipper-1 (Dana Ross)
Jul 12	Survey visit (4350'elevation) Jim Meadow	Sonoran skipper-5** (Erick Shore & Sarah Austin)
Jul 13	Survey visit (4000'elevation) Fawn Meadow	Sonoran skipper-2** (Erick Shore & Sarah Austin)
Jul 13, 17&20	Survey visit (5060'elevation) Eightmile Meadows (larger meadow)	Sonoran skipper-6 on Jul 13 (Dana Ross), 20 on Jul 17 (Ryan Gerstenberger), & 9 on Jul 20 (Maggie Gould & CJ Flick)
Jul 20	Survey visit (4700' elevation) Hawk Mtn Meadow	Sonoran skipper-1** (Doug Runyon & Christine Cha)
Jul 27	Survey visit (5200'elevation) Bonney Meadows	Sonoran skipper-7 (Aaron Truesdell)

Note: ** Sonoran skipper identification not confirmed.

Recommendations for 2007 Surveys

The mardon skipper has a relatively short flight period (two to six weeks), which varies depending upon site elevation and annual weather conditions. The current survey protocol for mardon skipper recommends three site visits per year over a two-year period to determine presence or absence for this species (Seitz et al. 2006). Because we spent time evaluating habitat during year-one surveys, the second year's effort is a valuable part of the protocol. Based on our 2006 observations, we recommend follow-up surveys for several sites in 2007. In total, we identified (Table 2) six survey areas on the CRGNSA (one is new) and 16 areas on the Mt. Hood (four are new).

We recommend resurveying sites where we found juba or Sonoran skippers and sites that appear to have similar habitat conditions to known sites in Washington. Mt. Hood National Forest (Table 2) has some high-potential habitat for mardon skippers based on forest type and grasses that look very similar to several Mt. Adams sites. Of special note are several areas either overlooked during the 2006 survey effort or visited after the skipper flight period. Horkelia Meadow is one of several moist, upland meadows that actually appear on the USGS topographic map. Following a field visit, Horkelia Meadow looks ideal for mardon habitat. Eightmile Meadows contain one smaller meadow that has the appearance of Bunny Hill on Mt. Adams Ranger District. We recommend surveying both Eightmile meadows. A Forest Service road circuit (last row in Table 2 under Mt. Hood National Forest) has the same forest type as Mt. Adams' mardon sites and contains numerous natural meadows. However, the Forest Service road-circuit area in Table 2 will require further refinement by conducting field reconnaissance.

We believe the historic allotment maps could be instrumental in locating mardon skippers on the Mt. Hood National Forest. Historic sheep allotment maps and registers are standardized across the National Forest system. We recommend using the sheep-allotment maps to identify historic natural meadows where source populations of mardon skipper may remain today. Begin by surveying natural meadows rather than openings strictly created by harvesting trees. This exercise with accompanying field verification is recommended in order to prioritize survey sites.

Plants and forest associations may aid in site selection. John Davis noted the presence of *Sisyrinchium idahoense* (pale blue-eyed grass) at several new mardon sites on Mt. Adams Ranger District this past season. Vince Harke had previously mentioned *Calochortus subalpinus* (Cascade mariposa lily) as potentially an important nectar plant. Mt. Adams' mardon sites comprise Douglas-fir, ponderosa pine, and noble, Pacific-silver or grand fir with cottonwood or aspen frequently interspersed.

We recommend contracting the second-year surveys on the Mt. Hood National Forest in order to have dedicated observers present during the mardon's short flight period. With ISSSSP funding, the CRGNSA can easily handle its six priority sites in 2007.

Table 2. Recommended Survey Locations for 2007.

Columbia River Gorge National Scenic Area - Washington and Oregon @			
Site Name	Legal Description	Elevation-ft	Comments
Courtney Rd	S34,T3NR11E	600-900	Drainage present
Dog Mtn Trailhead	S32,T3N,R9E	100-300	Small area of fescue
Dog Mtn Top	S29&32,T3N,R9E	100-2800	Historic sheep allotment
High Valley Farm	S31,T2N,R6E	900	Survey upper pasture only
Marsh Hill	S5,T2N,R12E	800	Focus on riparian interface
Stacker Butte	S30,T3N,R14E	1500-3220	Focus on riparian interface at 1st tower & north aspect
Mt. Hood National Forest - Oregon #			
Site Name	Legal Description	Elevation-ft	Comments
Bear Springs+	S22,T5S,R10E	3000	Check both meadows
Black Wolf Mdw+	S8,T5S,R8E	4600	Start last week June
Bonney Mdws+	S25,T2S,R11E	5200	Hummocks & edges
Boulder Ditch	N1/2S6,T5S,R11E	3000	FEID & streams; Rd 4850
Brook Mdw & Shelterwood+	S10,T2S,R10E	4300	Shelterwood is on the east side of Rd 17; start last week June
Camas Prairie E.+	S16,T5S,R10E	3200	By corral; SIID
Camp Windy+	S20,T3S,R10E	5400	Hummocks & edges
Cooper Spur+	S12,T2N,R9E	4000	Start in late June
Eightmile Mdws+	S25,T2S,R11E	5060	Both meadows: smaller moist meadow looks like Bunny Hill
Fawn Mdw	S9,7S,R6E	4500	- -
Hawk Mtn Mdws	S27,T8S,R7E	4560	- -
Horkelia Mdw+	S15,T2S,R10E	4800	Looks like Mt. Adams' mardon site in South Prairie vicinity
Jim Mdw	S21,T7S,R7E	4440	- -
Long Prairie	S1,T1S,R10E	3600	Fan out from corral area
McCubbins Gulch	S1/2S19,T5S,R11E	2400	FEID & tributaries
FS Rd Circuit+: 17 betw 1710 & 44, 1720 betw 17 & 4430, 2730 (Cold Springs Rd), 44 betw 4410 & 4420, & 4420		3500-6100	Forest type similar to Mt. Adams' mardon sites; cross-check with historic sheep-camp maps & records

Note: @ Use the mardon skipper flight period in Thurston County, WA as the reference for scheduling survey dates.

Use the mardon skipper flight period on Mt. Adams Ranger District, WA as the reference for scheduling survey dates.

+ High priority survey sites

Discussion and Observations

The extreme heat in late June and July appeared to accelerate (shorten) the flight periods for the mardon skippers. On July 2nd, over 50 individuals were counted at a Mt. Adams site, while less than one week later, their numbers dwindled to less than 10. This observation clearly illustrates the mardon skippers' brief and variable flight period.

Historic Sheep Allotments and Mardon Skipper Habitat

John Davis conducted site visits to Mt. Adams' mardon sites to tease out habitat patterns that might assist him in intuitively finding other new mardon sites. Next, he reconnoitered various westside and central Mt. Adams Ranger District locations in search of mardons, using some of the habitat characteristics he found at the reference sites. His efforts paid off. John Davis noted that mardons likely had "source" sites within historic natural meadows that are now encroached by conifers, and in some areas, have been harvested in recent decades as timber sales.

This process led us to wonder what historic information could help us more easily locate where natural meadows are located when we remembered "old" sheep driveways were once used to move sheep between openings on the Gifford Pinchot National Forest. USGS topographic maps typically display more wetland meadows than moist upland meadows.

On the Mt. Adams Ranger District, sheep "camp" allotments occurred from the western Yacolt burn area to the eastern Mt. Adams wilderness. Sheep moved along driveways connecting natural meadows, which contained a documented amount of palatable browse. Allotment maps note the number of days of main forage available to a specific allotment of sheep. Forage is often coded on maps or allotment registers, including "FEID" for *Festuca idahoensis*.

Historic 1920-1950's "sheep camp" maps were overlaid with present-day mardon skipper sites at Mt. Adams Ranger District, Washington to determine if there was any overlap between natural meadows with a fescue component and mardon skipper locations. Indeed, patterns emerge. This is an important tool for biologists, which can assist them in identifying natural moist meadows.

2007 Addendum

The six recommended CRGNSA sites in Table 2 were surveyed in 2007 by John Davis. John provided consistent field expertise both years. Although the target species was not found in either 2006 or 2007, the juba skipper was present at all sites except Courtney Road, and the Arctic skipper was identified at High Valley Farm in 2007. The juba skipper has a similar flight period and uses comparable plant communities as the mardon skipper and so serves as an optimistic indicator for locating mardon skippers.

Weather was optimal and flight periods for juba skipper were right on track at Stacker Butte. Stacker Butte represents the most-intact native bunchgrass community (administered under WA DNR Natural Area Preserve program). High Valley Farm (upper pasture) has potential habitat but is in serious decline due to invasive species (blackberry). 2007 results are summarized in Table 3. See Appendix D for dates of survey visits in 2007.

Table 3. Chronology of 2007 Surveys.

Columbia River Gorge National Scenic Area –Washington and Oregon		
Date	Activity	Comments
Apr 24-Jun 8	Surveys on CRGNSA, WA and OR	John Davis, lead experienced surveyor
May 9	Survey visit (800' elevation) Marsh Hill, OR	Juba skipper-1 (John Davis)
May 10&23	Survey visit (2400' elevation) Stacker Butte, WA	Juba skipper-1 mating on May 10 & 11 on May 23 (John Davis)
May 22&29	Survey visit (950' elevation) High Valley Farm, WA	Juba skipper-1 on May 22 & 1 on May 29; Arctic skipper-2 on May 29 (John Davis)
May 31	Survey visit (2800' elevation) Dog Mtn Top, WA	Juba skipper-3 (John Davis)
Jun 8	Survey visit (300' elevation) Dog Mtn Trailhead, WA	Juba skipper-1 (John Davis)

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Thanks to Vince Harke, USFWS fish and wildlife biologist, for his oversight on training, habitat selection, survey effort, and verification of skipper species. John Davis, recently retired USFWS biologist and noted Columbia Gorge naturalist, served as our resident butterfly expert and detective in determining discernable habitat patterns for the mardon skipper on the Mt. Adams Ranger District. John's detective work ultimately led to the "eureka" connection between sheep camps and historic natural meadows that are not otherwise visible on aerial photography or delineated on topographic maps. Maggie Gould, biological science technician on the Mt. Hood National Forest, was invaluable for recommending survey sites on that forest. Cheryl Mack, Mt. Adams Ranger District archeologist, shared the sheep allotment maps for Mt. Adams Ranger District, which helped us draw some associations with known mardon skipper sites. Ryan Gerstenberger, served as a model surveyor: he gave his undivided attention, provided timely coordination, and embraced the project with whole-hearted enthusiasm. We thank Kelli VanNorman, Interagency Coordinator, and Rob Huff, Interagency Conservation Planning Coordinator, for providing financial assistance to conduct this project.



John Davis

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Appendix A

2006 Prioritization Schema for Mardon Survey Site Selection (CRGNSA)

1. High density bunchgrass
2. Mardons like low grasses (≤ 1 ft in ht) that are not dominated by tall-grass species
3. 1500 to 2000-foot elevation is a greater priority
4. Places with historic occurrence of Sonoran skipper, which often co-occurs
5. Areas with a historic fire regime
6. Protected from the dry, moisture-grabbing east wind
7. If eastside, riparian or other moisture important; mardons like mesic conditions
8. Westside is a lower priority in general
9. In flatter areas of CRGNSA, you get into introduced species
10. No mardons found in the hemlock zone yet, e.g. Lone Butte; more in mixed conifer
11. Accessibility



Appendix B

2006 Summary of Mardon Skipper Surveys on the CRGNSA

Site Name	Legal Description	Elevation-ft	Visit Dates	Comments
Catherine Cr Mimas	S25,T3,R11E S30,T3N,R12E	200-600	Apr 26 & May 17	Dry annuals - drop
Chenoweth Table	S29-31,T2N,R13E	600	May 4 & 31	Dry annuals -drop
Courtney Rd	S34,T3NR11E	600-900	Apr 28, May 15 & 30	Intermittent drainage
Tracy Hill	S14,T3N,R11E	2000	May 15	Dry annuals - drop
Upper Catherine Cr	S14,T3N,R11E	1680	May 15	Dry & windy - drop
The Dalles Mtn Rd	S18,T2N,R14E	360-650	Apr 19	Dry annuals & windy Drop re: Vince Harke
Deutsch State Park	S35,T2N,R6E	50	Apr 25, May 11	Waist-high, rhizomatous grass; drop re: John Davis
Dillacourt Canyon	S18,T3N,R12E	300	Apr 26	Not habitat - drop
Dog Mtn Trailhead	S32,T3N,R9E	100-300	Apr 28, May 23, Jun 19	Juba skipper
High Valley Farm	S31,T2N,R6E	950	Apr 25, May 11, Jun 5 & 8	Sonoran skipper Keep upper pasture & drop lower re: John Davis
Larch Mtn	S32,T1N,R6E	4280	Jun 6	Habitat no longer present Drop re: John Davis
Major Cr-Rocky Flat	S30,T3N, R12E	500-800	May 2, 5 & 17	Dry annuals - drop
Marsh Hill	S5,T2N,R12E	800	May 3 & 19, Jun 8	Juba skipper & riparian
Miller Island	S13,14,23,T2N,R1 5E	170-300	Apr 27	Dry & windy Drop re: John Davis
Sams-Walker	S34,T2N,R6E	40	Apr 25, May 11	Waist-high, rhizomatous grass; drop re: John Davis
Shippey Road	S36,T4N,R12E	2056	May 5	Not habitat Drop re: John Davis
Stacker Butte	S30,T3N,R14E	1500-3220	May 5 & 26, Jun 23 (too late)	Expansive area of contiguous native bunchgrasses
Twin Tunnels-East	S2,T2N,R11E	400-700	May 9 & 25	Dry annuals - drop
Twin Tunnels-West	S4,T2N,R11E	440-600	May 8 & 30	Dry annuals - drop
Wishram, Hwy 14	S13,T2N,R14E	200-480	Apr 19	Dry & windy Drop re: Vince Harke
Woodard Mdws	S3,T2N,R6E	3008	Jun 7	Wetland - drop

Note: **Bold-faced** sites are worth surveying in 2007, using Thurston County, WA as the reference source for timing.

Appendix C

2006 Summary of Mardon Skipper Surveys on the Mt.Hood National Forest

Site Name	Legal Description	Elevation-ft	Visit Dates	Comments
Bald Butte	S26,T1S,R10E	3800	Jun 12 & 27	Dry & windy - drop
Ball Point	S14,T3S,R11E	2800	Jun 23	Dry annuals - drop
Bear Springs	S22,T5S,R10E	3000	Jun 21& 28, Jul 6	Sonoran skipper Historic site
Black Wolf Mdw	S8,T5S,R8E	4600	Jul 6 & 11	Keep re: Dana Ross
Bonney Mdws	S25,T2S,R11E	5200	Jul 17, 20 & 27	Sonoran skipper Keep re: Dana Ross
Brook Mdw & Shelterwood	S10,T2S,R10E	4300	Jun 20 & 21, Jul 5, 12 & 17	Good potential Keep re: Dana Ross
Cachebox Mdw	S33,T8S,R7E	4520	Jul 5 & 13	- -
Camas Prairie East	S16,T5S,R10E	3200	Jun 2&28, Jul 6	High species diversity
Camp Windy	S20,T3S,R10E	5400	Jul 17, 20 & 24	- -
Cooper Spur	S12,T2N,R9E	4000	Jul 7	Sonoran skipper
Ed's Mdw	S11,T8S,R7E	3600	Jul 13	Not habitat - drop
Eightmile Mdws (smaller & larger)	S25,T2S,R11E	5060	Jul 7, 13, 17 & 20	Sonoran skipper (lgr) Timing off on smllr
Fawn Mdw	S9,7S,R6E	4500	Jul 13	Sonoran skipper
Fret Cr Mdws	S1,T3S,R10E	5000	Jul 19	Wetland - drop
Gibson Prairie	S14,T1S,R10E	3800	May 24, Jun 20, Jul 5	Hellebore abundant - drop
Hawk Mtn Mdws	S27,T8S,R7E	4560	Jul 20	Sonoran skipper
Highland Ditch	S1,T4S,R11E	2300	Jun 22	Dry annuals - drop
High Rock	S1,T5S,R7E	4660	Jul 11&19	Drop re: Dana Ross
Hood River Mdw	S11,T3S,R10E	4500	Jul 10	Wetland - drop
Horsethief Mdw	S5,T3S,R10E	3600	May 28	No longer habitat Drop re: Maggie Gould
Hunter Prairie	S9,T5S,R11E	2600	Jun 28, Jul 6	Dry annuals - drop
Jim Mdw	S21,T7S,R7E	4440	Jul 12	Sonoran skipper
Joe's Point	S8&17,T2S,R11E	3900	Jul 5 & 7	Dry annuals - drop
Knebal Springs	S31,T1S,R11E	3700	Jun 20, Jul 7 & 11	Drop re: Dana Ross
Little Badger	S29,T3S,R12E	1500	Jun 23	Dry annuals - drop
Long Prairie	S1,T1S,R10E	3600	May 24,Jun 7&28	Vicinity has potential
Middle Prairie	S12,T1S,R11E	3600	Jun 20, Jul 5	- -
Mt. Hood Mdws	S3&4,T3S,R9E	5300-6000	Jul 10, 21& 24	Drop re: Dana Ross
N. Arm Timothy Lk.	S13,T5S,R8E	3420	Jun 29, Jul 11	Sonoran skipper Drop re: Dana Ross
N. Fk Mill Ridge	S8&9,T1S,R11E	3400	Jul 6	Dry & windy - drop
Ramsey Creek	S12&13,T2N,R11E	2900-3100	Jun 14 & 29	Dry annuals - drop
Ramsey Ridge	S17&18,T2S,R12E	2800-3000	Jun 14 & 29	Dry annuals - drop
Round Mdw	S28,T8S,R6E	5000	Jul 12	- -
S. Mill Cr. Ridge Rd	S16,T1S,R11E	3200	Jun 2 & 22, Jul 7	Dry ridgetop - drop
Squaw Mdw	S13,T4S,R6E	4160	Jul 10	- -
Stringer Mdw	S3&10,T3S,R9E	5300	Jul 10	Drop re: Dana Ross
Surveyor's Ridge	S3,T1S,R10E	3700	Jun 12 & 27	Dry ridgetop - drop
Teacup Lake	S12,T3S,R9E	4300	Jul 7&10	Drop re: Dana Ross

Appendix C (continued)				
Toms Mdw	S14,T7S,R6E	2040	Jul 5	--
Twin Mdw	S27,T8S,R7E	4700	Jul 5	--
Upper Clackamas Lake	S36T5S,R81/2E	3400	Jul 11	Wetland - drop
FS 1720&1720-180	S21,T1S,R11E	3200	Jun 21 & Jul 7	Dry annuals - drop
FS 1720&1722	S28,T1S,R11E	3300	Jun 20& 29, Jul 5	Dry annuals - drop
FS 2710&2710-120	S25,T3S,R11E	2400	Jun 22	--
FS 44&4420	S16,T2S,R11E	4500	Jul 5	--
FS 4421	S15,T2S,R11E	3600	Jul 7	--
FS 4660-140	S32,T6S,R7E	3400	Jul 10	Managed openings
FS 6310	S26,T6S,R6E	2300	Jul 7	--

Note: **Bold-faced** site names are worth surveying in 2007 using Mt. Adams Ranger District, WA as the reference source for timing.



Appendix D

2007 Summary of Mardon Skipper Surveys on the CRGNSA

Site Name	Legal Description	Elevation-ft	Visit Dates	Comments
Courtney Rd	S34,T3NR11E	600-900	Apr 24, May 14 & 24	Intermittent drainage
Dog Mtn Trailhead	S32,T3N,R9E	100-300	Apr 28, May 14, Jun 8	Juba skipper
Dog Mtn Top	S29&32,T3N,R9E	100-2800	May18&31, Jun 12	Juba skipper
High Valley Farm	S31,T2N,R6E	950	Apr 30, May 22&29	Juba & Arctic skippers
Marsh Hill	S5,T2N,R12E	800	Apr27, May 9&25,	Juba skipper
Stacker Butte	S30,T3N,R14E	1500-3220	May 10&23, Jun 7	Expansive area of contiguous native bunchgrasses