ESTABLISHING A SOUTHERN SIERRA MEADOWS IMPORTANT BIRD AREA:

RESULTS FROM MEADOW SURVEYS AT STANISLAUS, SIERRA, AND SEQUOIA NATIONAL FORESTS, AND YOSEMITE AND SEQUOIA/KINGS CANYON NATIONAL PARKS

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INTRODUCTION

This report summarizes the results of a spatially extensive, three-year avian survey that began in 1998. With funding from the National Fish and Wildlife Foundation, Forest Service Region Five Partners in Flight, Yosemite National Park, and numerous private donors, we have surveyed bird communities at 208 meadows throughout the southern and central Sierra Nevada, including about 40 meadows each at Stanislaus, Sierra, and Sequoia National Forests as well as Yosemite and Sequoia/Kings Canyon National Parks. This report presents our findings, and is the first step towards jointly nominating the most important of the meadows as a Southern Sierra Meadows Important Bird Area (IBA), through Audubon California. Our objectives in this document are to briefly detail the importance of montane meadows to Sierran birds, describe our meadow survey protocols as well as criteria used to rank meadows, present the results of all meadow surveys, and lastly, recommend a set of high priority meadows at each park or forest which we think should be included in the IBA system. The next crucial step will be working with personnel at each forest and park to further refine the selections in order to choose a final set of IBA meadows that will best dovetail with current management strategies and practices, and take into account competing management goals. We wish to stress that although we consider the meadows we are recommending to be of the highest importance to birds at each park or forest, input from agency personnel regarding meadow selection and management concerns is critical to selecting the most appropriate sites for the Southern Sierra Meadows IBA.

Project Rationale

Montane meadows are among the most productive habitats in the Sierra and play a unique and crucial role in the life history and ecology of several groups of Sierran birds. Current criteria for the establishment of IBAs include populations of endangered or threatened species, as well as high diversity of breeding birds (National Audubon Society 1998). We have identified six general groups of birds dependent on montane meadow habitats at some point in their life histories. Two of the identified groups coincide

directly with the IBA criteria set forth by the National Audubon Society (National Audubon Society 1998). The first group includes endangered species which utilize montane meadows. Currently two species on the state endangered species list, Great Gray Owl and Willow Flycatcher, nest almost exclusively in meadows or rely heavily on montane meadow habitat. The second group of birds that satisfy published IBA criteria is the diverse assemblage of Sierran birds that depend on meadows or riparian habitats to breed. Beyond these two groups of birds, we recognize four other distinct bird groups which our data show to be variously dependent on montane meadow habitat: up-slope dispersers, montane breeders that aggregate in meadows during the post-breeding period, southbound migrants, and forest/edge occurring species.

The Forest Service has recently revised meadow management guidelines aimed at protecting the Great Gray Owl and Willow Flycatcher (USFS 2001). Anecdotal data suggest that the Willow Flycatcher is continuing to decline in parts of the Sierra. Over the last three years we have seen former breeding territories go unoccupied at Hodgdon Meadow in Yosemite National Park and at Ackerson Meadow, on the Stanislaus National Forest. These two high-profile species are reason enough to be concerned about the health of Sierran meadows. Species-specific management plans are now required to ensure the conservation of these species. We believe the current state of meadow health in the Sierra is reflected in the imperiled status of these two species, which should be viewed as sensitive indicators of the health of meadow dependent bird populations in general. Indeed, Breeding Bird Survey data suggest that long-term population trends of an alarming number of meadow dependent birds are declining in the Sierra, including American Robin, Orange-crowned Warbler, Nashville Warbler, Yellow Warbler, Wilson's Warbler, Chipping Sparrow, and White-crowned Sparrow (Siegel and DeSante 1999). The goal of the Sierra Meadows IBA is to help safeguard a broad suite of meadow dependent species in the Sierra, well before they become as vulnerable as Willow Flycatcher and Great Gray Owl.

A diverse group of birds depends at least partially on montane meadow habitat for breeding. Besides the endangered species, the list includes Mallard; shorebirds such as Killdeer at low to mid elevations and Spotted Sandpipers and Common Snipe at higher elevations; Virginia Rail; Belted Kingfisher; Warbling Vireo; warblers such as Wilson's

and Yellow; sparrows including Song, Lincoln's and White-crowned, as well as Savannah and Vesper in the drier southern Sierra, and Chipping along healthy meadow edges; Western Meadowlark at lower, drier meadows; and both Red-winged and Brewer's Blackbirds throughout the Sierra. All of these birds rely to various degrees on healthy meadows to harbor their nests and provide resources for successfully breeding. Most also require specific habitat elements within a meadow that only healthy, diverse meadows can supply to a full host of birds. Many species are also restricted to particular elevational bands within the Sierra, so a thoughtfully chosen set of IBA meadows must include diverse sites chosen from a variety of elevation zones.

Up-slope dispersal in the Sierra is a well-known but poorly documented phenomenon. Up-slope dispersal occurs in species such as House Wren, Orange-crowned Warbler, and Nashville Warbler, which typically nest well below mid-elevation montane meadows, but disperse up-slope in the post-breeding period. They then aggregate in large numbers at montane meadows, which they use as molting and fattening grounds before migrating south. Our mist-net data from meadows throughout the Sierra indicate that meadows vary greatly in their attractiveness to up-slope dispersers, with the largest aggregations occurring at meadows with healthy, dense willow thickets. Many montane breeding birds also disperse up-slope to a lesser extent than the aforementioned species, particularly warblers including MacGillivray's and Hermit. These species disperse to areas above their breeding grounds and utilize moist meadow edge habitat to molt and build up fat reserves. Meadow habitats appear to be just as important to up-slope dispersing bird species that utilize them in the post-breeding period as they are to the birds that commonly breed there.

Several species of forest-breeding birds that breed all the way up into the Sierran high-country also aggregate in montane meadows in large numbers as a post-breeding habitat, notably Yellow-rumped Warbler and Dark-eyed Junco. These birds exhibit the same general behavior as typical up-slope dispersers; however, because they also breed at the same elevations as the meadow dispersing grounds, it is impossible to determine if individual birds are up-slope migrants or local breeders (or locally hatched individuals). At many meadows, the birds present most likely include both types of individuals. Throughout this document when we refer to 'montane post-breeding birds' we are

therefore referring to species, notably Yellow-rumped Warbler and Dark-eyed Junco, which breed in montane forest habitats and later gather in moderate to large numbers in montane meadows; some individuals may have dispersed upslope, while others may have bred or hatched nearby. We have observed that these two species of birds actually prefer somewhat different habitat elements within meadows than typical up-slope dispersers, which are fairly catholic in their preference for willow thickets. Juncos generally prefer healthy, but fairly open edge habitat and Yellow-rumped Warblers will utilize willows, but also commonly patronize forest/meadow edges. Not surprisingly, Yellow-rumped Warblers and Dark-eyed Juncos therefore sometimes occur in large numbers in meadows completely absent of typical up-slope dispersers. This is again another reason for selecting a diverse set of IBA meadows.

An important group of birds we have documented utilizing montane meadows is southbound migrants. Species which are known to use montane meadows as stopover sights during late summer/fall migration include Rufous Hummingbird (which does not breed in the Sierra) and Wilson's Warbler (Gaines 1992); as well as most species of up-slope dispersing birds. Our data show aggregations of southbound immature Wilson's Warblers present in a small set of meadows, generally sites with healthy willow thickets for foraging habitat. Rufous Hummingbirds occur in most meadows, but certainly more commonly in those with an abundance of wildflowers. This important group of birds depend on montane meadows for a brief yet exceedingly important portion of their life history.

The final group of birds which utilize meadow habitat include species normally considered forest-occurring birds. Both breeding and post-breeding individuals of numerous forest occurring species appear to depend subtly on meadow habitat. Meadow edges provide unique circumstances for vegetation to diversify beyond what would normally occur in mature coniferous forests. Tree species such as quaking aspen and black oak are common along meadow edges, providing a diverse structural diversity which is important to numerous forest bird species. Shrubs at meadow edges, such as willow, alder, labrador tea, manzanita, and bush chinquapin, as well as patches of large forbs such as corn lily, broad-leaved lupine, and cow parsnip, can create edge habitats that are truly phenomenal for numerous bird species. Anecdotal observations indicate

that densities of forest breeding birds increase on and around meadow edges, perhaps in part because of the abundance of nutritional resources available in meadows. Our mist-net data document the use of meadow habitat by forest occurring birds, including Red-breasted Sapsuckers, Golden-crowned Kinglets, and Black-headed Grosbeaks in willow thickets, and Dusky Flycatchers and Western Tanagers frequenting meadow edges.

In summary, montane meadows are critically important habitats to breeding as well as post-breeding individuals of a broad array of Sierran species. Safeguarding high-quality meadow habitat must be an essential component of any comprehensive plan to safeguard Sierra bird populations in general. Identifying the most important meadows to Sierran birds is an important first step towards realizing this goal.

The bird survey and habitat assessment data presented here were collected in a standardized fashion over a large geographical area. The results can therefore be viewed as general inventory information, and could potentially be used as baseline data for long term monitoring. The data will also allow hypothesis-based testing of correlations between bird communities, vegetation characteristics, and management practices. Finally, the surveys provide land managers with a scientifically credible list of top priority meadows, deserving of the highest degree of protection possible, in order to safeguard meadow dependent Sierran birds.

We have found that, even among the relatively pristine meadows of national parks, meadows vary greatly in their importance to birds. This variation is amplified in national forests, where resource-use stresses have been more intense. By focusing attention on a small set of the most important meadows, the Sierra Meadows IBA will aid land managers in targeting the most important sites for conservation efforts, while still minimizing resource-use conflicts across the larger landscape.

SURVEY METHODS

Overview

The objective of this protocol was to rapidly survey montane meadows for breeding and post-breeding birds, and to describe and characterize the habitat and health at each meadow. Candidate meadows for surveying were selected based on existing agency records and GIS data and, more commonly, consultation with local experts.

Particularly in meadow-rich areas of the Sierra, we tried to select meadows that were relatively large and were believed to contain substantial woody, riparian vegetation. Meadows were generally visited twice, once in the early season (May 15-June 30), and once in the late season (July 15-August 31). The purpose of the early season visit was to quantify the species richness and abundance of breeding birds, both in the meadow and in the surrounding forest. Point counts and an area search were employed for this survey. Also during the early season, visit vegetation data were collected, and hydrological health and human use-impacts were described. During the late season visit, mist nets were used for a single morning to survey for both post-breeding adult and immature birds. Meadow vegetation data were collected again during the late season visit, and use-impacts were re-evaluated. Siegel et. al. (2001, in review) demonstrate the validity of our rapid survey methods for assessing the importance of individual meadows to both breeding and post-breeding birds. Copies of all data sheets are included in Appendix I.

Point Counts

All point count surveys started within 10 minutes of local sunrise, and counts were always completed within 3.5 hours. As many points as possible were placed within the meadow, such that they were at least 150 m apart, and at least 25 m from the forest edge. Distances were determined by pacing, which was standardized and practiced at the beginning of the field season. When conducting point counts, the observer stood in one location, and did not move from that location until the count was complete; counts lasted five minutes. Birds within the meadow were recorded separately from birds outside of the meadow. If a bird moved out of or into the meadow during a count, it was recorded once only, wherever it was originally observed. Within each spatial category (inside or outside of meadow) we recorded birds in three subcategories: less than 50-meters from observer, greater than 50-meters from observer, and flyovers. We took great care not to double count birds; in most circumstances, if an individual bird was detected that had already detected at a previous point, it was not recorded again. The only exception was when a bird was recorded as being outside of the 50-meter circle on one point count but inside of the 50-meter circle on a later point count. In this instance, we recorded the bird in the most recent count and then placed an 'X' in the appropriate field of the previous

count. Detections marked with 'X' were excluded from tabulations of birds detected at each meadow.

In some cases, especially at higher elevations, a meadow may freeze over in the moments just before the sun hits it. This will often slow or completely stop bird activity. In such cases we occasionally suspended counting for up to 30 minutes. We never *started* point counts late however (as opposed to suspending work once the counts were underway). Freezing in a meadow generally has the greatest effect on low foraging meadow birds. Starting counts later than sunrise may result in undersampling forest- or canopy-dwelling birds that are not affected by freezing in a meadow, and often sing energetically right at dawn.

Area Search

Area searches were employed in conjunction with points counts to identify species that may be present, but were missed during the point counts. Area searches were conducted after point counts were completed and were usually conducted by the individual who conducted the point counts. The length of time spent conducting point counts was determined by the size of the meadow. Ten minutes of area search were allotted for every point counted, with a cap of 90 minutes (i.e., a meadow which was large enough to contain six point count stations was surveyed with a 60 minute area search). Area searches were carried out by "birding," i.e., slowly walking throughout the meadow and counting all birds detected. The observer paid particular attention to "birdy" areas, but also was careful to cover all areas of the meadow thoroughly. Observers did not venture far into the forest beyond the meadow edge, but did record birds that were heard from the surrounding forest.

In addition to the area search, observers kept a list of all bird species encountered at each meadow (i.e., while conducting vegetation surveys, setting up camp, etc.).

Vegetation Data Collection

We surveyed meadow vegetation by placing a series of 1-meter square quadrats along transects throughout the meadow in a standardized fashion. In an average-sized meadow, transects were placed 50 meters apart and quadrats were placed 25 meters apart

along each transect. The first quadrat was placed approximately 15 meters from the meadow/forest edge. The maximum number of quadrats we completed at any meadow was 30— this prevented the process from becoming inordinately time-consuming. In extremely large meadows we placed transects and/or quadrats farther apart, so that the 30 quadrats were well distributed throughout the meadow. We took care to determine in advance (before vegetation data collection began) how far apart quadrats and transects would be spaced, and then paced the appropriate distances and sampled quadrats where they fall, so that the observer did not bias the data by consciously selecting which patches of vegetation to sample.

A wetness index was recorded for each quadrat, on a scale of 0-3, where 0 = completely dry, 1 = some moisture present, 2 = partial saturation or standing water present, and 3 = completely saturated or inundated with standing water.

On the data sheet, each quadrat was broken down by vegetation class (grass, sedge, rush, forb, etc.). For each vegetation class we recorded the percent cover, average height, and maximum height of vegetation within the quadrat. We also recorded the common herbaceous species, particularly those of clear significance to birds, such as corn lily or broad-leaved lupine, in the plant species entry for each quadrat. Meadow vegetation quadrats were sampled when the meadow was visited for point counts as well as when it was visited for mist netting.

Willow Stands: Willows were measured by stands. Stands were considered discrete if the data collector could comfortably walk between them. Measurements were taken in 10-meter intervals along the length of a stand. Fields on the data sheet apply to each particular 10-meter segment. Fields on the data sheet include: stand number, measurement number, hedging assessment, highlining assessment, maximum height, and average height. In the notes portion of the sheet, the observer also recorded the length and width of each stand. Due to the extensive coverage of willows in some meadows, a cap of ninety minutes was placed on time spent recording willow data. In meadows where a small percentage of the willows actually present was surveyed (less than 50% of the willows) we took care to move around to different areas to get a representative sampling of willows throughout the meadow. Detailed willow data were collected only

during the first visit to a meadow. During the second visit, willows were inspected much more quickly. The observer looked for recent hedging or highlining, and summarized the general health of willows in the work journal.

Meadow Map

A detailed map of each meadow was drawn on the back of the hydrology/disturbance evaluation form. The maps were as detailed as practicable, accurately represent the shape and size of the meadow. Items indicated on the maps included:

- North arrow
- Accurate meadow shape
- Streams, including direction of flow and eroded areas
- Willow/Alder stands
- Trees/shrubs in the meadow, identified to species
- Detailed description of the habitat surrounding the meadow, including overstory and understory
- Manmade structures including trails, culverts, roads, fences, buildings
- Legend and scale
- Placement of vegetation transects
- Placement of mist nets
- Exact location of any species of special concern

Mist-Net Surveys

Mist-net surveys were conducted between July 15-August 31. Lower elevation meadows were generally surveyed first, followed by meadows at higher elevations. We generally arrived at each meadow the afternoon before the survey in order to establish net lanes and collect vegetation data. Six 12m mist-nets were placed in a standardized array throughout the meadow. Six nets, along with associated equipment (poles, stakes, and rope) was the maximum a two-person team could carry to remote field sites. When locating nets in a meadow we allowed 30-50m between nets. We placed three nets in willows, two nets on the meadow/forest edge and one net 10-15 meters into the adjacent

forest. In meadows where willows were absent or sparse, we placed more nets on the meadow/forest edge. Whenever possible we utilized 'natural' net lanes—areas in the meadow between willows and forest edges where birds frequently travel to move through the meadow. Locations of the nets were recorded on the meadow map produced during the early season visit. Nets were opened within 10 minutes of local sunrise, and operated for six hours, weather conditions permitting. Captured birds were banded, aged, and sexed according to established protocols (Pyle 1997; DeSante et. al. 2000).

Journal

Two different journal forms were used, an early season form and a late season form. The general purpose of the journal was to record all relevant logistical information for each survey site, document effort, problems, and natural history, and record a general overall description of the meadow.

Hydrology/Disturbance Evaluation

The purpose of this form was to document any human-use disturbances to the meadow and/or hydrological systems occurring in the meadow. Evidence of livestock presence, stream condition, and any other human-use impacts were evaluated and described. On this form percent willow coverage in the meadow, along with percent woody riparian vegetation (willows, alder, cottonwoods, and quaking aspen) was recorded. The habitat surrounding the meadow was also characterized, including standardized forest type, presence/extent of large snags, chaparral, and granite.

Species of Management Concern Reports

For all species of management concern encountered, a field form was completed describing all aspects of the encounter. The location was recorded along with details concerning where in the meadow the bird was observed, details of behavior, vocalizations, and field marks.

CANDIDATE MEADOW SELECTION

Our meadow ranking system was three-tiered, with a high, medium, and low category. The meadows ranked in the high category represent those which, based on survey results alone, we believe should be recommended for inclusion in the Southern Sierra Meadows IBA. The following criteria were used in assigning meadow rankings: avian species richness and abundance during both point counts and mist-nets surveys, overall quality of meadow habitat, elevational and geographical representation, and agency-specific management concerns.

Point count and mist-net bird survey results were interpreted separately. An interesting finding was that meadows of high importance to breeding birds were not necessarily particularly important to up-slope migrants and dispersing birds, and vice-versa. In looking at point count data we examined four main indices: avian species richness, avian density, indicator species, and endangered species. Avian species richness was defined as the total number of species recorded in a meadow during point count surveys. Avian density was calculated as the average total number of birds (excluding flyovers) recorded per point. Diversity and density figures for each meadow were compared to the forest- or park-wide average in assessing the importance of each meadow to birds. Because point count data also recorded forest occurring birds, and a high presence of these birds could undesirably skew the apparent importance of a meadow, we specifically looked at meadow dependent bird species as indicators of the habitat quality. Diversity and density of these meadow dependent birds was given priority in classifying meadows based on point count data. The presence of endangered species during early season visits was also considered in assigning meadow rankings.

Mist-net results were more complicated to assess, with more groups of birds to consider. Along with total bird captures per net hour, we also looked at capture rates of up-slope migrants, montane post-breeders, southbound migrants, meadow breeding birds, endangered species, and forest occurring birds. All of these groups were defined in the introduction of this report.

Overall habitat quality and elevational and geographical representation were also considered in prioritizing meadows. 'Habitat quality' encompasses the diversity and vigor of vegetation found in the meadow, especially the extent of diverse assemblages of tall forbs, extensive and healthy willow stands (particularly along water courses), presence of quaking aspen stands or black oaks, healthy edge habitat, and intact surrounding forest, along with the hydrological condition of the meadow. Meadow vegetation and avifauna vary slightly with latitude, but change much more noticeably with elevation. We made a deliberate effort to assign high priority rankings to a handful of high-altitude meadows, even though they generally had lower diversity and abundance of birds than their mid-elevation counterparts, so that at least a few sites that harbor high-elevation species would be represented.

The final consideration in ranking meadows was agency-specific management concerns. One goal of this report is to facilitate working with cooperating agencies in order to identify a set of high-quality meadows where conflict with land management goals other than maintaining wildlife habitat is relatively small. We hope to achieve this goal by presenting the current set of meadows to each agency for in-house review and response. We can then modify the set if nominated meadows are found to be unsuitable for IBA classification.

SURVEY RESULTS

We completed surveys at 208 montane meadows throughout the southern and central Sierra Nevada, including Stanislaus, Sierra, and Sequoia National Forests, as well as Yosemite and Sequoia/Kings Canyon National Parks. We also collected vegetation data, assessed hydrological health and documented use-impacts at each of the surveyed meadows.

Yosemite National Park

A total of 46 meadows in Yosemite were surveyed (Figure 1); 21 with point-counts and mist-nets, 13 with point counts alone, and 12 with mist-nets alone (Table 1). Table 2 lists all surveyed meadows along with their respective priority rankings, which

were based on survey results and were determined by the process explained above. Summary results of point count surveys are indicated in Table 3. Figures 2, 3, and 4 display meadows at which point counts as ranked by species richness, overall abundance, and individuals per point, respectively. Summary results of mist-net surveys are displayed in Table 4. Figure 5 displays meadows surveyed by mist netting as ranked by total captures per net-hour. Descriptive accounts detailing our findings for each individual meadow are presented in Appendix II. Appendix III provides detailed point count and mist-net results for each meadow, and also includes a complete list of all bird species detected at each meadow. Appendix accounts and tables are explained below in the section of this report entitled 'Reader's Guide to the Appendices'.

Sequoia/Kings Canyon National Park

A total of 43 meadows were surveyed in Sequoia and Kings Canyon National Parks (Figure 6); 28 with point counts and mist-nets, eight with point counts alone, and seven with mist-nets alone (Table 5). Table 6 lists all surveyed meadows along with their respective priority rankings. Summary results of point counts are indicated in Table 7. Figures 7, 8, and 9 display meadows surveyed by point counts as ranked by species richness, overall abundance, and individuals per point, respectively. Summary results of mist-net surveys are displayed in Table 8. Figure 10 displays meadows surveyed by mist nets as ranked by total captures per net-hour. Descriptive accounts detailing our findings for each individual meadow are presented in Appendix IV. Appendix V provides detailed point count and mist-net results for each meadow, and also includes a complete list of all bird species detected at each meadow.

Sierra National Forest

A total of 41 meadows were surveyed in Sierra National Forest (Figure 11); 28 with point counts and mist-nets, 11 with point counts alone, and two with mist-nets alone (Table 9). Table 10 lists all surveyed meadows along with their respective priority rankings. Summary results of point counts are indicated in Table 11. Figures 12, 13, and 14 display meadows surveyed by point counts as ranked by species richness, overall abundance, and individuals per point, respectively. Summary results of mist-net surveys

are displayed in Table 12. Figure 15 displays meadows surveyed by mist-nets as ranked by total captures per net-hour. Descriptive accounts detailing our findings for each individual meadow are presented in Appendix VI. Appendix VII provides detailed point count and mist-net results for each meadow, and also includes a complete list of all bird species detected at each meadow.

Sequoia National Forest

A total of 39 meadows have been surveyed in Sequoia National Forest (Figure 16); 23 with point counts and mist-nets, 15 with point counts alone, and one with mist-nets alone (Table 13). Table 14 lists all surveyed meadows along with their respective priority rankings. Summary results of point counts are indicated in Table 15. Figures 17, 18, and 19 display meadows surveyed point counts as ranked by species richness, overall abundance, and individuals per point, respectively. Summary results of mist-net surveys are displayed in Table 16. Figure 20 displays meadows surveyed by mist-nets as ranked by total captures per net-hour. Descriptive accounts detailing our findings for each individual meadow are presented in Appendix VIII. Appendix IX provides detailed point count and mist-net results for each meadow, and also includes a complete list of all bird species detected at each meadow.

Stanislaus National Forest

A total of 39 meadows were surveyed in Stanislaus National Forest (Figure 21); 18 with point counts and mist-nets, eight with point counts alone, and 14 with mist-nets alone (Table 17). Table 18 lists all surveyed meadows along with their respective priority rankings. Summary results of point counts are indicated in Table 19. Figures 22, 23, and 24 display meadows surveyed by point counts as ranked by species richness, overall abundance, and individuals per point, respectively. Summary results of mist-net surveys are displayed in Table 20. Figure 25 displays meadows surveyed by mist-nets as ranked by total captures per net-hour. Descriptive accounts detailing our findings for each individual meadow are presented in Appendix X. Appendix XI provides detailed point count and mist-net results for each meadow, and also includes a complete list of all bird species detected at each meadow.

Species of Management Concern

In order to facilitate rapid identification of sites where we observed species of management concern, we include here a list of all detections of Northern Goshawk, Great Gray Owl, Spotted Owl, and Willow Flycatcher. Meadow specific accounts (Appendix I) also briefly describe all encounters.

Yosemite National Park

-One adult Willow Flycatcher was mist-netted at Smith Meadow on 08/14/99.

-Two adult Willow Flycatchers were netted at Poopenaut on 08/17/99.

-Single Willow Flycatchers observed at Wawona Meadow (06/19/98) and Hodgdon Meadow (06/09/98).

Sequoia Kings Canyon National Parks

-A single Northern Goshawk was seen flying over Hockett Meadow on 08/04/98.

-A single Northern Goshawk was seen at Willow Meadow on 08/09/99.

-A single Northern Goshawk was seen flying over Alta Meadow on 06/11/00.

-A single Northern Goshawk was seen flying over Rock Creek Ranger Station Meadow on 06/18/00.

-A Spotted Owl was heard at [redacted] on 06/13/00 and 07/23/00.

Sierra National Forest

-Three adult Willow Flycatchers were mist-netted at Poison Grade Meadow on 08/23/99.

-One juvenile Willow Flycatcher was mist-netted at Markwood Meadow on 08/24/99.

-One Great Grey Owl was seen and heard at [redacted] on 08/23/99.

-Three juvenile Great Gray Owls were seen at [redacted] on 08/23/99.

Sequoia National Forest

-A single Willow Flycatcher was observed calling in Dunlap Meadow on 05/20/99.

-A single adult Willow Flycatcher was mist-netted at Rodeo Flat Meadow on 08/19/99.

-One Great Gray Owl was observed at [redacted] on 07/05/99.

-A single singing male Willow Flycatcher was recorded at Taylor Meadow on 05/23/00.

-One Great Gray Owl was heard calling from the southeast side of [redacted] on the afternoon of 07/24/00.

Stanislaus National Forest

-A single Spotted Owl was heard in the forest surrounding [redacted] on 06/05/00.

-A Great Gray Owl nest was observed on a small, unsurveyed meadow north of [redacted] on 05/25/00 and 07/04/00. On the second visit a fledgling Great Gray Owl was observed in the forest approximately 50m northeast of the nest tree.

READER'S GUIDE TO THE APPENDICES

Appendix I

Appendix I contains photocopies of all data sheets utilized for the protocols described above.

Appendices II, IV, VI, VIII, X

Appendices II, IV, VI, VIII, and X contain summary habitat data and narrative accounts of each meadow surveyed. Meadows are presented in alphabetical order, within each national forest or national park. Because our habitat survey protocol evolved over the three years of the project, some meadow accounts contain more detailed data than others. Here we explain and clarify the accounts.

The introductory box contains the meadow name, USGS 7.5 minute quadrangle the meadow is found on, northing, easting and elevation in feet. Below this is summarized point count, mist-net and vegetation data, as well as meadow size and wetness information. 'Surrounding habitat' is a classification of overall forest type, based on field observations. 'Woody riparian vegetation' is an approximation of the percent of the meadow covered by willow, alder, quaking aspen, and cottonwood. 'Meadow size' is based the number of point count stations that fit inside of the meadow-- small meadows accommodated one to three stations (up to approximately 3 hectares), medium meadows accommodated four to seven stations (up to approximately 6 hectares) and large meadows accommodated eight or more stations (greater than approximately 6 hectares). 'Vegetation quadrats' indicates the number of 1m square quadrats described for each meadow; the early and late season visits are tallied separately. 'Wetness index' presents the average wetness score (see Survey Methods, above) assigned to the quadrats; early and late season values were calculated separately. The table of meadow vegetation results represents average values calculated from all quadrats; again early and late season values are averaged separately.

The 'meadow description' section briefly summarizes the meadow hydrology, vegetation, and surrounding vegetation. Bird survey results are then discussed, with an

emphasis on meadow dependent species detected during point counts and/or mist-net surveys. 'Grazing/human use impacts' then summarizes any evidence of use of or impacts to the meadow by livestock or humans, including any manmade structures present in the meadow. Meadow accounts end with a priority ranking of 'low', 'medium' or 'high'.

Appendix III, V, VII, IX, XI

Appendix III, V, VII, IX, XI contain detailed bird survey data for each meadow. Meadows are presented in alphabetical order, within each national forest or national park. Meadows surveyed by point counts have two tables: 1) a summary table listing all species detected during point counts, total numbers for each species, and birds per point for each species, and 2) a species list table detailing all species observed while surveying the meadow, including not just point count data, but also detections noted during the area search or at other times while we visited the meadow. Mist-net data are summarized in a single table that includes the following information for each species captured: the number of known hatching-year birds captured, the total number of birds captured (age determinations for some individual birds could not be made reliably, so total number of birds captured includes hatching-year birds, adult birds, and birds of undetermined age), and the percent of the catch comprised of hatching-year birds.

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Table 1. Meadows surveyed in Yosemite.

Meadow	IBP Number	UTM_n	UTM_e	Elevation (ft)	Point Count Date	Mist-netting Date
Big	21001	4176500	258000	4298	06/08/98	07/20/99
Hodgdon	21002	4186955	248235	4652	06/09/98	07/30/99
Rail Creek	21003	4168100	262100	5300	06/14/98	--
Wawona	21004	4156500	266000	4059	06/19/98	07/20/99
Sunrise	21005	4168000	263600	6000	06/20/98	08/06/99
Smith	21006	4200554	257314	6325	06/22/98	08/14/99
Tiltill Valley	21007	4206200	263500	5597	06/22/98	07/28/99
Gravel Pit	21008	4205500	251600	5043	06/24/98	--
Crane Flat	21009	4182200	253515	6177	07/07/98	08/02/99
Peregoy	21010	4172323	268437	6974	07/09/98	08/08/99
Ostrander Lake Trail	21011	4171300	272100	7793	07/10/98	--
Pothole	21012	4176000	272000	7744	07/10/98	--
Gin Flat East	21013	4183625	257265	6797	07/11/98	08/04/99
Porcupine Flat	21014	4187054	274030	8479	07/12/98	--

Table 1, cont.

Meadow	IBP Number	UTM_n	UTM_e	Elevation (ft)	Point Count Date	Mist-netting Date
North Turner	21015	4165422	269541	7502	07/13/98	--
Empire	21016	4166500	267000	6426	07/13/98	08/07/99
Aspen Valley	21017	4190300	256300	6879	07/14/98	--
Little Aspen Valley	21018	4189500	256600	6879	07/14/98	--
McGurk	21019	4173635	269025	6872	06/15/99	07/21/98
Cottonwood	21020	4197500	255100	5849	06/16/99	07/25/98
Summit	21021	4172500	266000	7279	--	07/26/98
Lyell Fork	21022	4194065	294795	8685	06/29/99	07/29/98
Lukens Lake	21023	4193200	270100	8275	06/14/99	08/01/98
Dark Hole	21024	4191500	270400	7908	--	08/02/98
Little Porcupine	21025	4187100	273400	8226	--	08/03/98
Elevenmile	21026	4168400	261700	5269	--	08/06/98
Halfmoon	21027	4197035	276000	8885	--	08/09/98
Wildflower	21028	4193200	256300	6757	--	08/11/98
Tenaya Lake	21029	4189175	282915	8161	--	08/13/98
North Tuolumne	21030	4195295	290505	8430	--	08/14/98

Table 1, cont.

Meadow	IBP Number	UTM_n	UTM_e	Elevation (ft)	Point Count Date	Mist-netting Date
Westfall	21031	4170725	267555	7079	06/14/99	07/26/98
Harden Lake	21032	4197845	264525	7489	06/15/99	07/28/98
Smokey Jack	21033	4204805	289335	8652	06/24/99	08/19/98
Ribbon	21034	4181165	265500	7590	06/17/99	08/21/98
Lower Grace	21035	4221635	270195	8360	06/27/99	--
Upper Grace	21036	4224605	270915	8700	06/27/99	--
Upper Paradise	21037	4215575	267435	7700	06/27/99	--
Matterhorn	21038	4209665	287895	8600	06/25/99	--
Rodgers	21039	4207145	279225	8800	06/27/99	--
Monroe	21040	4171505	264915	7200	06/13/99	08/05/99
Mt. Gibson	21041	4209245	262215	7900	06/17/99	07/26/99
Tall Grass	21042	4207500	261000	7440	--	07/27/99
Joie's	21043	4199225	257150	6040	--	08/15/99
Poopenaut	21044	4200400	252200	3350	--	08/17/99
Prescott	21045	4203000	255600	3780	--	08/18/99
White Wolf	21046	4194363	266872	7875	07/08/99	08/03/99

Table 2. Priority ranking for Yosemite National Park meadows. All meadows listed in order of priority within each ranking category.

High Priority

Big
Hodgdon
Wawona
Sunrise
Tiltill Valley
Crane Flat
Empire
Aspen Valley
Gin Flat East
McGurk
Cottonwood
Westfall
Harden Lake
Upper Paradise
Mt. Gibson
Tall Grass
Joie's
Poopenaut

Medium Priority

Smith
Peregoy
Lyell Fork
Smokey Jack
Ribbon
Matterhorn
Monroe

Low Priority

Prescott
White Wolf
Rodgers
Lower Grace
Upper Grace
Lukens Lake
Dark Hole
Little Porcupine
Elevenmile
Halfmoon
Wildflower
Tenaya Lake
North Tuolumne
Summit
Little Aspen Valley
Ostrander Lake
Pothole
Porcupine Flat

Table 2, cont.

North Turner
Rail Creek
Gravel Pit

Table 3. Summary results of Yosemite point counts.

Meadow (IBP ref. No.)	Points	Species	Individuals	Species per Point	Individuals per Point
Big (21001)	14	37	217	2.64	15.50
Tiltill Valley (21007)	15	31	192	2.07	12.80
Hodgdon (21002)	10	31	105	3.10	10.50
Wawona (21004)	19	28	215	1.47	11.32
McGurk (21019)	12	24	135	2.00	11.25
Sunrise (21005)	13	23	132	1.77	10.15
Harden Lake (21032)	4	23	59	5.75	14.75
Crane Flat (21009)	9	22	96	2.44	10.67
Upper Paradise (21037)	6	21	54	3.50	9.00
Cottonwood (21020)	4	20	85	5.00	21.25
Empire (21016)	7	20	62	2.86	8.86
Aspen Valley (21017)	7	19	74	2.71	10.57
Gin Flat East (21013)	7	19	59	2.71	8.43
Westfall (21031)	8	18	99	2.25	12.38

Table 3, cont.

Meadow (IBP ref. no.)	Points	Species	Individuals	Species per Point	Individuals per Point
Smokey Jack (21033)	15	18	96	1.20	6.40
Mt. Gibson (21041)	10	18	85	1.80	8.50
Peregoy (21010)	7	18	79	2.57	11.29
Rodgers (21039)	5	16	54	3.20	10.80
Smith (21006)	7	16	53	2.29	7.57
Ostrander Lake Trail (21011)	3	16	36	5.33	12.00
Gravel Pit (21008)	5	16	36	3.20	7.20
Ribbon (21034)	6	15	63	2.50	10.50
White Wolf (21046)	5	15	49	3.00	9.80
Rail Creek (21003)	3	14	28	4.67	9.33
Lyell Fork (21022)	4	13	47	3.25	11.75
Matterhorn (21038)	5	13	44	2.60	8.80
Monroe (21040)	3	13	32	4.33	10.67
Lukens Lake (21023)	2	11	31	5.50	15.50
Little Aspen Valley (21018)	3	11	16	3.67	5.33
Pothole (21012)	4	10	25	2.50	6.25

Table 3, cont.

Meadow (IBP ref. no.)	Points	Species	Individuals	Species per Point	Individuals per Point
North Turner (21015)	3	10	21	3.33	7.00
Upper Grace (21036)	6	8	22	1.33	3.67
Lower Grace (21035)	3	8	15	2.67	5.00
Porcupine Flat (21014)	3	5	13	1.67	4.33

Table 4. Summary results of Yosemite mist-net surveys.

Meadow (IBP ref. no.)	Net-hours (n-h)	Species	Species/n-h	Known Juveniles	Known Juveniles/n-h	Known Adults	Known Adults/n-h	Total Birds	Total Birds/n-h	% Juveniles
Crane Flat (21009)	60.0	20	0.33	84	1.40	21	0.35	124	2.07	80.0
Westfall (21031)	36.0	18	0.50	35	0.97	28	0.78	67	1.86	55.6
Monroe (21040)	26.7	15	0.56	28	1.05	27	1.01	65	1.69	50.9
Wawona (21004)	35.0	15	0.43	27	0.77	25	0.71	57	1.63	51.9
McGurk (21019)	39.0	15	0.38	11	0.28	40	1.03	55	1.41	21.6
Hodgdon (21002)	76.2	15	0.20	35	0.46	7	0.09	44	0.58	83.3
Big (21001)	34.5	14	0.41	9	0.26	15	0.43	25	0.54	37.5
Gin Flat East (21013)	51.7	14	0.27	47	0.91	7	0.14	59	1.14	87.0
Tiltill Valley (21007)	30.0	12	0.40	16	0.53	18	0.60	35	1.17	47.1
Joie's (21043)	31.3	12	0.38	18	0.58	7	0.22	30	0.96	72
Sunrise (21005)	36.0	12	0.33	12	0.33	12	0.33	27	0.75	50
Cottonwood (21020)	36.0	12	0.33	14	0.39	11	0.31	31	0.86	56
Mt. Gibson (21041)	32.7	11	0.34	25	0.77	25	0.77	50	1.53	50
Harden Lake (21032)	36.0	11	0.31	16	0.44	17	0.47	33	0.92	48.5
Poopenaut (21044)	32.7	10	0.31	10	0.31	16	0.49	32	0.98	38.5
Lukens Lake (21023)	36.0	9	0.25	9	0.25	7	0.19	18	0.50	43.8

Table 4, cont. Meadow (IBP ref. no.)	Net-hours (n-h)	Species	Species/n-h	Known Juveniles	Known Juveniles/n-h	Known Adults	Known Adults/n-h	Total Birds	Total Birds/n-h	% Juveniles
Smokey Jack (21033)	30.0	8	0.27	23	0.77	0	0.00	23	0.77	100
Tall Grass (21042)	32.5	8	0.25	25	0.77	18	0.55	47	1.45	58.1
Peregoy (21010)	36.0	8	0.22	6	0.17	8	0.22	15	0.42	42.9
Empire (21016)	36.0	8	0.22	4	0.11	7	0.19	11	0.31	36.4
Ribbon (21034)	36.0	8	0.22	9	0.25	5	0.14	15	0.42	64.3
Lyell Fork (21022)	36.0	7	0.19	11	0.31	19	0.53	30	0.83	36.7
Smith (21006)	36.0	7	0.19	7	0.19	6	0.17	13	0.36	53.8
White Wolf (21046)	46.7	7	0.15	14	0.30	4	0.09	18	0.39	77.8
Summit (21021)	36.0	6	0.17	2	0.06	18	0.50	20	0.56	10
Wildflower (21028)	36.0	6	0.17	13	0.36	9	0.25	24	0.67	59.1
Prescott (21045)	36.0	6	0.17	3	0.08	5	0.14	9	0.25	37.5
Elevenmile (21026)	36.0	4	0.11	5	0.14	5	0.14	10	0.28	50
Little Porcupine (21025)	36.0	4	0.11	0	0.00	9	0.25	9	0.25	0
Halfmoon (21027)	36.0	3	0.08	10	0.28	1	0.03	11	0.31	90.9
North Tuolumne (21030)	36.0	3	0.08	7	0.19	1	0.03	8	0.22	87.5
Tenaya Lake (21029)	36.0	2	0.06	1	0.03	1	0.03	2	0.06	50
Dark Hole (21024)	36.0	2	0.06	1	0.03	1	0.03	2	0.06	50

Table 5. Meadow surveyed in Sequoia/Kings Canyon National Parks.

Meadow	IBP Number	UTM_n	UTM_e	Elevation (ft)	Point Count Date	Mist-netting Date
Alta	21067	4049300	351300	9300	06/12/00	08/05/99
Big Pete	21080	4108200	357500	9200	06/24/00	08/20/00
Big Wet	21059	4058000	363150	9300	--	08/19/98
Bullfrog Lake	21073	4070200	375000	10600	06/30/00	08/11/00
Cahoon	21065	4055000	344850	7450	06/04/00	08/11/98
Charlotte Creek	21082	4071200	372000	10000	06/21/00	--
Circle	21053	4048000	343000	6950	07/02/98	--
Clover Creek	21064	4057100	344500	8350	--	08/10/98
Colony	21089	4056500	340900	7800	06/07/00	07/21/00
Comanche	21070	4064400	349200	7800	05/31/00	08/16/99
Crescent	21050	4047000	343600	6700	07/01/98	08/17/99
Dorst	21091	4056250	339000	6800	06/04/00	07/18/00
Ellis	21087	4063775	353653	8720	06/07/00	--
Grouse	21079	4102800	358750	8200	06/25/00	08/22/00
Halstead	21056	4053600	340500	6600	07/03/98	08/13/99
Hockett	21062	4026500	351400	8530	--	08/04/98
Huckleberry	21052	4047200	343000	6720	07/02/98	--

Table 5, cont.

Meadow	IBP Number	UTM_n	UTM_e	Elevation (ft)	Point Count Date	Mist-netting Date
Little Pete	21081	4107250	358000	8840	06/24/00	08/19/00
Log	21051	4047000	344200	6800	07/01/98	08/28/99
Lone Pine	21071	4049500	359150	8880	06/15/00	08/25/99
Long	21055	4050500	344900	7280	07/03/98	08/08/99
Lower Charlotte Crk	21092	4071600	370500	10000	--	08/15/00
Lower Junction	21076	4068800	370350	8202	06/27/00	08/12/00
Lower Rock Cr. Cross	21084	4039500	380000	9480	06/19/00	08/09/00
Lower Vidette	21075	4068900	373966	10200	06/26/00	--
Marmot	21068	4050700	347200	8160	--	08/07/99
Mather	21072	4046700	342200	6600	06/06/00	08/27/99
McClure	21066	4116900	345250	9990	--	08/26/98
Mehrten	21060	4050000	349500	9640	06/11/00	07/31/98
Metroyhoy	21090	4064078	362179	9700	06/06/00	--
Redwood	21086	4043800	353500	6040	06/13/00	07/23/00
Rock Creek Ranger St	21083	4039700	380800	9600	06/18/00	08/08/00
Round	21054	4048100	341800	6380	07/02/98	--
Sand	21061	4025000	351400	8560	--	08/03/98
Silliman	21088	4055322	345964	8140	06/05/00	07/20/00

Table 5, cont.

Meadow	IBP Number	UTM_n	UTM_e	Elevation (ft)	Point Count Date	Mist-netting Date
Stillwater	21078	4101600	361300	8480	06/25/00	08/21/00
Sugarloaf	21063	4065800	351100	7320	06/02/00	08/07/98
Upper Bob Meadows	21085	4049700	360600	9520	06/14/00	--
Upper Bubbs Creek	21074	4066000	377197	10400	06/29/00	08/14/00
Upper Cabin	21069	4058400	338000	6900	06/05/00	08/14/99
Upper Junction	21077	4068500	371300	8200	06/27/00	08/13/00
Willow	21057	4053400	345200	7280	07/05/98	08/09/99
Zumwalt	21058	4072750	357400	5000	07/06/98	08/19/99

Table 6. Priority ranking for Sequoia/Kings Canyon National Parks meadows. All meadows listed in order of priority within each ranking category.

High Priority

Alta
Grouse
Zumwalt
Upper Bubbs Creek
Metroyhoy
Sugarloaf
Upper Cabin
Lone Pine
Redwood
Dorst
Cahoon
Willow
Long
Circle
Mather
Crescent
Lower Rock Creek Crossing
Hockett

Medium Priority

Halstead
Stillwater
Lower Junction
Upper Bob Meadows
Big Pete
Little Pete
Bullforg Lake
Upper Junction
Comanche
Ellis
Colony
Silliman
Round
Marmot
Log
Rock Creek Ranger Station
Sand

Low Priority

Lower Charlotte Creek
Charlotte Lake
Lower Vidette
Big Wet
Clover Creek
Mehrten
Huckleberry
McClure

Table 7. Summary results of Sequoia/Kings Canyon point count surveys.

Meadow	Points	Species	Individuals	Species per Point	Individuals per Point
Alta (21067)	9	26	110	2.90	12.20
Big Pete (21080)	3	15	27	5.00	9.00
Bullfrog Lake (21073)	4	8	18	2.00	4.50
Cahoon (21065)	7	14	42	2.00	6.00
Charlotte Creek (21082)	5	8	15	1.60	3.00
Circle (21053)	10	20	97	2.00	9.70
Colony (21089)	4	16	43	4.00	10.75
Comanche (21070)	5	12	30	2.40	6.00
Crescent (21050)	7	19	73	2.71	10.43
Dorst (21091)	4	17	43	4.25	10.75
Ellis (21087)	9	24	75	2.67	8.33
Grouse (21.079)	6	22	49	3.67	8.17
Halstead (21056)	6	12	45	2.00	7.50
Huckleberry (21052)	2	11	18	5.50	9.00
Little Pete (21081)	2	15	20	7.50	10.00

Table 7, cont.

Meadow	Points	Species	Individuals	Species per Point	Individuals per Point
Log (21051)	4	17	31	4.25	7.75
Lone Pine (21071)	3	8	10	2.60	3.30
Long (21055)	8	20	87	2.50	10.88
Lower Junction (21.076)	4	14	25	3.50	6.25
Lower Rock Creek Crossing (21084)	8	16	58	2.00	7.25
Lower Vidette (21075)	3	8	17	2.67	5.67
Marmot (21068)	4	6	12	1.50	3.00
Mather (21072)	3	16	35	5.30	11.67
Mehrten (21060)	7	8	27	1.14	3.86
Metroyhoy (21090)	5	11	30	2.20	6.00
Redwood (21086)	5	17	51	3.40	10.20
Rock Creek Ranger Station (21083)	8	13	36	1.63	4.50
Round (21054)	3	11	39	3.67	13.00
Silliman (21088)	9	12	35	1.44	3.89
Stillwater (21.078)	3	10	14	3.33	4.67
Sugarloaf (21063)	9	19	84	2.11	9.33

Table 7, cont.

Meadow	Points	Species	Individuals	Species per Point	Individuals per Point
Upper Bob Meadows (21085)	5	6	13	1.20	2.60
Upper Bubbs Creek (21.074)	6	7	22	1.17	3.67
Upper Cabin (21069)	3	15	45	5.00	15.00
Upper Junction (21.077)	3	9	17	3.00	5.70
Willow (21057)	4	14	33	3.50	8.25
Zumwalt (21058)	2	8	16	4.00	8.00

Table 8. Summary results of Sequoia/Kings Canyon mist-net surveys.

Meadow	Net-hours (n-h)	Species	Species/n-h	Known Juveniles	Known Juveniles/n-h	Known Adults	Known Adults/n-h	Total Birds	Total Birds/n-h	% Juveniles
Alta (21067)	25.5	17	0.67	101	3.96	18	0.71	123	4.82	84.9
Big Pete (21080)	30.0	5	0.17	9	0.30	6	0.20	15	0.50	60.0
Big Wet (21059)	36.0	2	0.06	4	0.11	0	0	5	0.14	100.0
Bullfrog Lake (21073)	27.0	8	0.30	12	0.44	1	0.04	14	0.52	92.3
Cahoon (21065)	35.0	8	0.23	38	1.09	7	0.20	46	1.31	84.4
Clover Creek (21064)	36.0	5	0.14	4	0.11	2	0.06	6	0.17	66.7
Colony (21089)	36.0	3	0.08	32	0.89	7	0.19	39	1.08	82.1
Comanche (21070)	36.0	6	0.17	6	0.17	4	0.11	10	0.28	60.0
Crescent (21050)	36.0	14	0.39	23	0.64	15	0.42	41	1.14	60.5
Dorst (21091)	36.0	14	0.39	26	0.72	29	0.81	56	1.56	47.3
Grouse (21079)	20.0	5	0.25	6	0.30	3	0.15	9	0.45	66.7
Halstead (21056)	34.5	11	0.32	59	1.71	4	0.12	66	1.91	93.7
Hockett (21062)	36.0	13	0.36	28	0.78	12	0.33	42	1.17	70.0
Little Pete (21081)	29.5	5	0.17	18	0.61	4	0.14	22	0.75	81.8

Table 8, cont.

Meadow	Net-hours (n-h)	Species	Species/n-h	Known Juveniles	Known Juveniles/n-h	Known Adults	Known Adults/n-h	Total Birds	Total Birds/n-h	% Juveniles
Log (21051)	33.5	11	0.33	12	0.36	10	0.30	24	0.72	54.5
Lone Pine (21071)	30.0	11	0.37	34	1.13	14	0.47	48	1.6	70.8
Long (21055)	32.2	5	0.16	51	1.59	2	0.06	53	1.65	96.2
Lower Charlotte Creek (21092)	36.0	10	0.28	14	0.39	1	0.03	16	0.44	93.3
Lower Junction (21076)	36.0	10	0.28	13	0.36	7	0.19	23	0.64	65.0
Lower Rock Creek Crossing (21084)	24.0	6	0.25	29	1.21	11	0.46	41	1.71	72.5
Marmot (21068)	36.0	9	0.25	25	0.69	7	0.19	32	0.89	78.1
Mather (21072)	34.0	17	0.50	47	1.38	9	0.26	60	1.76	83.9
McClure (21066)	33.0	2	0.06	2	0.06	1	0.03	3	0.09	66.7
Mehrten (21060)	36.0	7	0.19	3	0.08	10	0.28	13	0.36	23.1
Redwood (21086)	30.0	14	0.47	9	0.30	30	1.00	43	1.43	23.1
Rock Creek Ranger Station (21083)	26.3	5	0.19	4	0.15	2	0.08	6	0.23	70.0
Sand (21061)	36.0	11	0.31	31	0.86	15	0.42	47	1.31	67.4
Silliman (21088)	35.3	6	0.17	6	0.17	16	0.45	23	0.65	27.3
Stillwater (21078)	24.0	8	0.33	36	1.5	14	0.58	52	2.17	72.0
Sugarloaf (21063)	36.0	6	0.17	4	0.11	13	0.36	20	0.56	23.5

Table 8, cont.

Meadow	Net-hours (n-h)	Species	Species/n-h	Known Juveniles	Known Juveniles/n-h	Known Adults	Known Adults/n-h	Total Birds	Total Birds/n-h	% Juveniles
Upper Bubbs Creek (21074)	29.0	5	0.17	17	0.59	3	0.10	22	0.76	85.0
Upper Cabin (21069)	36.0	9	0.25	23	0.64	8	0.22	31	0.86	74.2
Upper Junction (21077)	36.0	10	0.28	13	0.36	6	0.17	19	0.53	68.4
Willow (21057)	36.0	14	0.39	59	1.64	9	0.25	69	1.92	86.8
Zumwalt (21058)	34.0	14	0.41	14	0.41	21	0.62	35	1.03	40.0

Table 9. Meadows surveyed Sierra National Forest.

Meadow	IBP Number	UTM_n	UTM_e	Elevation (ft)	Point Count Date	Mist-netting Date
101A	21278	4127800	311250	8640	06/25/00	08/27/00
102A	21279	4128200	310100	8640	06/24/00	08/29/00
Bear	21251	4100700	312200	6880	06/08/99	--
Bluebird	21253	4094130	315170	7160	06/09/99	--
Boggy I	21256	4148422	274171	6400	06/01/99	--
Cow	21267	4144264	304740	6600	07/05/99	--
Dusy	21283	4111700	325400	8200	06/18/00	08/25/00
Exchequer	21252	4104886	312228	7400	06/08/99	--
Fresno Dome	21273	4148700	276200	7280	07/01/00	08/18/00
Garlic	21288	4087600	328700	8800	06/15/00	08/23/00
Goat	21271	4151977	267995	5600	07/08/99	08/16/00
Hall	21262	4098290	320120	7200	05/27/99	08/28/99
Helms	21282	4112600	322400	8400	06/19/00	--
Hidden	21287	4088200	329500	8600	06/15/00	08/22/00
Hoffman	21255	4096900	326900	8080	06/10/99	--

Table 9, cont.

Meadow	IBP Number	UTM_n	UTM_e	Elevation (ft)	Point Count Date	Mist-netting Date
House	21263	4096873	318016	6980	05/25/99	08/25/99
Jackass	21280	4127200	326100	7200	06/21/00	08/25/00
Kaiser Pass	21281	4129300	313700	9120	06/20/00	08/26/00
Long	21261	4095879	321497	7100	05/26/99	08/29/99
Long II	21269	4151766	272035	6400	07/08/99	08/29/99
Lower Ahart	21264	4098029	318144	7200	05/28/99	--
Lower Graveyard	21275	4142400	326400	8880	06/22/00	08/28/00
Markwood	21258	4107410	301929	6000	06/20/99	08/24/99
Meadow 197	21268	4150890	294585	7000	07/07/99	08/27/99
Meadow 63	21266	4122129	300132	5900	07/06/99	--
North Mill Creek	21290	4142950	303500	6560	--	08/27/00
Poison	21259	4107606	298695	5800	05/22/99	08/23/99
Poison Grade	21260	4107500	299700	5800	05/21/99	08/23/99
Ross	21254	4091334	315995	7000	06/09/99	08/27/99
Round	21277	4129700	309300	8520	06/29/00	08/28/00
Sample	21276	4133500	309200	7880	06/28/00	08/26/00

Table 9, cont.

Meadow	IBP Number	UTM_n	UTM_e	Elevation (ft)	Point Count Date	Mist-netting Date
Smith	21286	4089100	324500	6760	06/13/00	08/20/00
Spanish	21285	4088900	330200	8440	06/14/00	08/21/00
Statham	21284	4089920	329688	8160	06/16/00	08/24/00
Swanson	21257	4107881	296579	5800	05/19/99	08/24/99
Topping Cow Camp	21270	4149579	283749	6800	07/07/99	08/28/99
Twin	21274	4141700	322800	8320	06/23/00	08/29/00
Unnamed Meadow B	21272	4150681	276939	7960	07/02/00	08/17/00
Unnamed Meadow C	21289	4148750	277500	7500	--	08/19/00
Upper Mill Creek	21265	4141811	303292	6600	07/05/99	--
Wild	21250	4094762	319250	7360	06/10/99	08/25/99

Table 10. Priority ranking for Sierra National Forest meadows. All meadows listed in order of priority within each ranking category.

High Priority
Fresno Dome
Markwood
Hall
Jackass
Unnamed Meadow C
Poison
Long
Dusy
Meadow 197
Poison Grade
Ross
Garlic
Lower Graveyard
Topping Cow Camp

Medium Priority
House
Swanson
Long II
102A
Goat
Statham
101A
Unnamed Meadow B
Cow
Twin
Sample
Round
Wild
Smith
Hidden
Spanish
Meadow 63
Kaiser Pass

Low Priority
Boggy I
North Mill Creek
Upper Mill Creek
Helms
Exchequer
Bear
Lower Ahart
Hoffman
Bluebird

Table 11. Summary results of Sierra National Forest point count surveys.

Meadow	Points	Species	Individuals	Species per Point	Individuals per Point
101A (21278)	3	10	25	3.33	8.33
102A (21279)	4	15	35	3.75	8.75
Bear (21251)	3	15	23	5.00	7.67
Bluebird (21253)	3	12	30	4.00	10.00
Boggy I (21256)	3	14	23	4.67	7.67
Cow (21267)	4	13	43	3.25	10.75
Dusy (21283)	9	15	87	1.67	9.67
Exchequer (21252)	3	12	21	4.00	7.00
Fresno Dome (21273)	6	17	61	2.83	10.17
Garlic (21288)	10	21	65	2.10	6.50
Goat (21271)	4	19	43	4.75	10.75
Hall (21262)	9	31	134	3.44	14.89
Helms (21282)	8	13	64	1.63	8.00
Hidden (21287)	3	14	22	4.67	7.33
Hoffman (21255)	3	9	19	3.00	6.33

Table 11, cont.

Meadow	Points	Species	Individuals	Species per Point	Individuals per Point
House (21263)	5	19	50	3.80	10.00
Jackass (21280)	8	22	84	2.75	10.50
Kaiser Pass (21281)	8	14	63	1.75	7.88
Long (21261)	7	20	94	2.86	13.40
Long II (21269)	5	26	90	5.20	18.00
Lower Ahart (21264)	3	11	25	3.67	8.33
Lower Graveyard (21275)	12	20	96	1.67	8.00
Markwood (21258)	12	30	180	2.50	15.00
Meadow 197 (21268)	3	14	35	4.67	11.67
Meadow 63 (21266)	5	18	53	3.60	10.60
Poison (21259)	6	22	63	3.67	10.50
Poison Grade (21260)	6	23	104	3.83	17.33
Ross (21254)	7	20	60	2.86	8.57
Round (21277)	3	16	31	5.33	10.33
Sample (21276)	5	17	58	3.40	11.60
Smith (21286)	5	19	52	3.80	10.40

Table 11, cont.

Meadow	Points	Species	Individuals	Species per Point	Individuals per Point
Spanish (21285)	4	9	21	2.25	5.25
Statham (21284)	5	21	73	4.20	14.60
Swanson (21257)	6	23	69	3.83	11.50
Topping Cow Camp (21270)	7	17	81	2.43	11.57
Twin (21274)	5	16	56	3.20	11.20
Unnamed B (21272)	3	18	33	6.00	11.00
Upper Mill Creek (21265)	6	15	60	2.50	10.00
Wild (21250)	5	20	53	4.00	10.60

Table 12. Summary results of Sierra National Forest mist net surveys.

Meadow	Net-hours (n-h)	Species	Species/n-h	Known Juveniles	Known Juveniles/n-h	Known Adults	Known Adults/n-h	Total Birds	Total Birds/n-h	% Juveniles
101A (21278)	34.5	8	0.23	36	1.04	14	0.41	52	1.51	72.0
102A (21279)	36.0	7	0.19	15	0.42	7	0.19	24	0.67	68.2
Dusy (21283)	28.1	5	0.18	21	0.75	3	0.11	24	0.85	87.5
Fresno Dome (21273)	36.0	12	0.33	58	1.61	31	0.86	158	4.39	65.2
Garlic (21288)	36.0	12	0.33	94	2.61	8	0.22	110	3.06	92.2
Goat (21271)	35.5	13	0.37	12	0.33	12	0.33	49	1.46	50.0
Hall (21262)	34.0	11	0.32	34	1.00	8	0.24	44	1.29	77.3
Hidden (21287)	30.0	9	0.30	12	0.40	3	0.10	16	0.53	80.0
House (21263)	36.0	8	0.22	36	1.00	9	0.25	46	1.28	78.3
Jackass (21280)	36.0	14	0.39	17	0.47	16	0.44	33	0.92	51.5
Kaiser Pass (21281)	36.0	7	0.19	22	0.61	1	0.03	24	0.67	95.7
Long (21261)	32.7	8	0.24	25	0.77	3	0.09	28	0.86	89.3
Long II (21269)	35.7	18	0.50	35	0.98	26	0.73	65	1.82	53.9
Lower Graveyard (21275)	36.0	8	0.22	13	0.36	3	0.08	18	0.50	81.3

Table 12, cont.

Table12, cont. Meadow	Net-hours (n-h)	Species	Species/n-h	Known Juveniles	Known Juveniles/n-h	Known Adults	Known Adults/n-h	Total Birds	Total Birds/n-h	% Juveniles
Markwood (21258)	33.5	28	0.84	36	1.07	44	1.31	87	2.60	41.4
Meadow 197 (21268)	36.0	13	0.36	39	1.08	13	0.36	53	1.47	73.6
North Mill Creek (21290)	30.0	2	0.07	1	0.03	2	0.07	3	0.10	33.3
Poison (21259)	29.7	10	0.34	14	0.47	7	0.24	23	0.78	60.9
Poison Grade (21260)	36.0	16	0.44	19	0.53	36	1.00	60	1.67	31.7
Ross (21254)	34.0	13	0.38	30	0.88	11	0.32	44	1.29	68.2
Round (21277)	36.0	13	0.36	32	0.89	3	0.08	36	1.00	91.4
Sample (21276)	36.0	8	0.22	18	0.50	4	0.11	22	0.61	81.8
Smith (21286)	36.0	11	0.31	18	0.50	2	0.06	26	0.72	90.0
Spanish (21285)	25.3	10	0.40	35	1.38	17	0.67	56	2.21	67.3
Statham (21284)	32.0	7	0.22	14	0.44	5	0.16	22	0.69	73.7
Swanson (21257)	32.8	12	0.37	43	1.31	15	0.46	59	1.80	72.9
Topping Cow Camp (21270)	36.0	1	0.03	0	0	1	0.03	1	0.03	0
Unnamed B (21272)	35.0	16	0.46	36	1.03	23	0.66	94	2.69	61.0
Unnamed C (21289)	31.3	16	0.51	207	6.61	37	1.18	326	10.41	84.8
Wild (21250)	34.0	4	0.12	10	0.29	3	0.09	13	0.38	76.9

Table 13. Meadows surveyed in Sequoia National Forest.

Meadow	IBP Number	UTM_n	UTM_e	Elevation (ft)	Point Count Date	Mist-netting Date
Beach	21224	3998754	383802	7900	05/23/00	--
Beck	21228	4002934	396232	7880	05/25/00	--
Big	21222	3970500	379000	8000	05/22/00	--
Broder	21226	4002944	393287	7920	05/24/00	--
Cannell	21227	3964892	376373	7440	05/24/00	--
Chicago Stump	21235	4073528	323023	6600	06/01/00	07/20/00
Click	21214	4004800	360174	7800	07/07/99	08/06/99
Coffee Mill	21216	4000300	360900	7160	07/05/99	08/04/99
Crane	21209	3986561	354919	7360	06/06/99	08/15/99
Deep	21213	4002000	360900	7360	07/05/99	08/05/99
Double Bunk	21207	3979699	355255	6200	05/27/99	08/13/99
Dunlap	21201	3970031	360319	6600	05/20/99	08/03/00
East Rowell	21238	4063800	346100	9000	--	07/24/00
Holey	21218	3979900	354050	6320	07/03/99	08/03/99
Horse	21210	3973945	375836	7200	06/04/99	--

Table 13, cont.

Meadow	IBP Number	UTM_n	UTM_e	Elevation (ft)	Point Count Date	Mist-netting Date
Hossack	21217	4004600	353350	6540	07/07/99	08/16/99
Huckleberry	21234	4070491	327000	6520	05/31/00	07/19/00
Indian Basin	21236	4074000	326700	5880	06/02/00	07/22/00
Jackass	21205	3994946	389596	7700	05/26/99	--
Kramer	21230	3996012	362869	7040	05/26/00	07/26/00
Last Chance	21215	3985572	358800	5800	07/06/99	08/07/99
Long I	21200	3982825	357275	5960	05/19/99	08/08/99
Long II	21229	3965723	379047	7600	05/25/00	--
Lost	21231	3999761	394406	8400	05/26/00	07/23/00
Lower Parker	21220	3980867	352933	4689	05/20/00	08/02/00
Manter	21223	3971732	383809	7200	05/22/00	--
Parker Creek	21219	3980692	354979	4490	05/19/00	--
Pierce	21211	4058298	326154	4600	06/02/99	--
Quaker	21212	3997180	360250	7080	07/06/99	07/30/00
Quaking Aspen	21202	3997899	361138	7040	05/21/99	08/14/99
Rodeo Flat	21206	3990200	391400	7280	05/26/99	08/19/99

Table 13, cont.

Meadow	IBP Number	UTM_n	UTM_e	Elevation (ft)	Point Count Date	Mist-netting Date
Rowell	21232	4064742	344671	8800	05/30/00	07/23/00
Stony Creek	21233	4058000	335600	6480	05/30/00	07/18/00
Taylor	21225	3965833	383500	7040	05/23/00	--
Thompson	21208	3980000	357831	6600	06/05/99	--
Trout	21203	4007044	371881	6120	05/28/99	08/01/00
Troy	21204	3992621	388298	7760	05/25/99	08/18/99
Upper Bearskin	21237	4068800	330500	5840	06/03/00	--
Upper Parker	21221	3981668	352406	4714	05/20/00	07/29/00

Table 14. Priority ranking for Sequioia National Forest meadows. All meadows listed in order of priority within each ranking category.

High Priority
Quaking Aspen
Double Bunk
Hossack
Long I
Beck
Rodeo Flat
Huckleberry
Crane
Deep
Upper Parker
Troy
East Rowell
Dunlap
Taylor

Medium Priority
Coffee Mill
Big Meadow
Trout
Stoney Creek
Click
Chicago Stump
Holey
Jackass
Manter
Kramer
Lower Parker
Pierce
Indian Basin
Upper Bearskin
Quaker
Beach

Low Priority
Cannell
Long II
Horse
Thompson
Parker Creek
Last Chance
Lost
Broder
Rowell

Table 15. Summary results of Sequoia National Forest point count surveys.

Meadow	Points	Species	Individuals	Species per Point	Individuals per Point
Beach (21224)	19	29	207	1.53	10.89
Beck (21228)	22	31	276	1.41	12.55
Big (21222)	19	25	173	1.32	9.11
Broder (21226)	16	29	195	1.81	12.19
Cannell (21227)	18	27	193	1.42	10.72
Chicago Stump (21235)	5	23	78	4.60	15.60
Click (21214)	6	15	76	2.50	12.67
Coffe Mill (21216)	4	22	54	5.50	13.50
Crane (21209)	9	27	143	3.00	15.89
Deep (21213)	9	26	152	2.89	16.89
Double Bunk (21207)	5	22	68	4.40	13.60
Dunlap (21201)	11	23	116	2.09	10.55
Holey (21218)	4	22	50	5.50	12.50
Horse (21210)	5	16	55	3.20	11.00

Table 15, cont.

Meadow	Points	Species	Individuals	Species per Point	Individuals per Point
Hossack (21217)	5	18	58	3.60	11.60
Huckleberry (21234)	6	22	57	3.67	9.50
Indian Basin (21236)	13	31	156	2.38	12.00
Jackass (21105)	9	19	126	2.11	14.00
Kramer (21230)	8	22	90	2.75	11.25
Last Chance (21215)	4	14	42	3.50	10.50
Long I (21200)	8	28	90	3.50	11.25
Long II (21229)	12	23	112	1.92	9.33
Lost (21231)	13	23	156	1.77	12.00
Lower Parker Creek (21220)	9	21	107	2.33	11.89
Manter (21223)	20	32	190	1.60	9.50
Parker Creek (21219)	4	19	32	4.75	8.00
Pierce (21211)	6	19	95	3.17	15.83
Quaker (21212)	2	14	30	7.00	15.00
Quaking Aspen (21202)	9	25	220	2.78	24.44
Rodeo Flat (21206)	4	15	45	3.75	11.25

Table 15, cont.

Meadow	Points	Species	Individuals	Species per Point	Individuals per Point
Rowell (21232)	6	12	48	2.00	8.00
Stony Creek (21233)	5	21	65	4.25	13.00
Taylor (21225)	9	21	76	2.33	8.44
Thompson (21208)	12	21	79	1.75	6.08
Trout (21203)	9	22	99	2.44	11.00
Troy (21204)	11	24	132	2.18	12.00
Upper Bearskin (21237)	7	23	79	3.29	11.29
Upper Parker (21221)	8	27	98	3.38	12.25

Table 16. Summary results of Sequoia National Forest mist net surveys.

Meadow	Net-hours (n-h)	Species	Species/n-h	Known Juveniles	Known Juveniles/n-h	Known Adults	Known Adults/n-h	Total Birds	Total Birds/n-h	% Juveniles
Chicago Stump (21235)	34.2	10	0.29	40	1.17	7	0.20	47	1.37	85.1
Click (21214)	36.0	4	0.11	2	0.06	4	0.11	6	0.17	33.3
Coffee Mill (21216)	32.8	12	0.37	31	0.94	15	0.46	52	1.58	67.4
Crane (21209)	35.0	15	0.43	71	2.03	9	0.26	82	2.34	86.6
Deep (21213)	31.0	19	0.61	34	1.10	18	0.58	56	1.81	60.7
Double Bunk (21207)	33.0	17	0.51	79	2.36	8	0.24	89	2.66	88.8
Dunlap (21201)	20.7	16	0.77	120	5.80	7	.39.00	137	6.62	94.5
East Rowell (21238)	36.0	11	0.36	36	1.00	26	0.72	66	1.83	55.0
Holey (21218)	19.3	17	0.88	22	1.14	18	0.93	50	2.59	55.0
Hossack (21217)	29.3	15	0.51	97	3.31	3	0.10	102	3.48	97.0
Huckleberry (21234)	36.0	15	0.42	34	0.94	22	0.61	59	1.64	60.7
Indian Basin (21236)	36.0	7	0.19	9	0.25	14	0.39	23	0.64	39.1
Kramer (21230)	36.0	17	0.47	26	0.72	10	0.28	40	1.11	72.2
Last Chance (21215)	36.0	13	0.36	16	0.44	14	0.39	33	0.92	53.3
Long I (21200)	35.0	10	0.29	23	0.66	10	0.29	34	0.97	67.7

Table 16, cont.

Meadow	Net-hours (n-h)	Species	Species/n-h	Known Juveniles	Known Juveniles/n-h	Known Adults	Known Adults/n-h	Total Birds	Total Birds/n-h	% Juveniles
Lower Parker (21220)	36.0	8	0.22	9	0.25	4	0.11	13	0.36	69.2
Quaker (21212)	36.0	16	0.44	14	0.39	9	0.25	23	0.64	60.9
Quaking Aspen (21202)	35.3	12	0.34	36	1.02	13	0.37	50	1.42	72.0
Rodeo Flat (21206)	22.0	10	0.45	15	0.68	5	0.23	21	0.95	71.4
Rowell (21232)	36.0	9	0.25	6	0.17	15	0.42	21	0.58	28.6
Stony Creek (21233)	23.0	15	0.65	5	0.22	22	0.96	31	1.35	18.5
Trout (21230)	36.0	12	0.33	31	0.86	4	0.11	36	1.00	88.6
Troy (21204)	36.0	14	0.39	33	0.92	16	0.44	51	1.42	64.7
Upper Parker (21221)	13.3	14	1.05	33	2.48	22	1.65	61	4.58	60.0

Table 17. Meadows surveyed in Stanislaus National Forest.

Meadow	IBP Number	UTM_n	UTM_e	Elevation (ft)	Point Count Date	Mist-netting Date
Ackerson	21326	4191500	249522	4654	05/25/00	07/13/00
Ackerson South	21325	4190995	249522	4654	05/24/00	07/17/00
Anderson Flat	21320	4180893	243462	3425	05/19/00	--
Barn	21304	4242025	250198	7579	06/10/00	07/31/00
Bell	21328	4228449	242220	6760	05/30/00	07/24/00
Big Prather	21340	4251000	753600	7300	--	08/17/00
Bluff	21331	4236850	246500	8150	--	08/01/00
Bourland	21301	4222525	245087	7280	06/16/00	07/22/00
Clavey	21308	4217470	762950	5649	06/01/00	--
Corral	21343	4253900	758250	6700	--	08/15/00
Deer Flat	21319	4180967	240863	4100	05/18/00	--
Eagle	21303	4240900	252038	7502	06/11/00	07/30/00
East Randalls	21300	4249930	756900	7000	06/24/00	--
Emigrant	21335	4232000	267900	9500	--	08/26/00
Gardner	21305	4255696	757928	6700	06/05/00	--

Table 17, cont.

Meadow	IBP Number	UTM_n	UTM_e	Elevation (ft)	Point Count Date	Mist-netting Date
Greely Hill	21323	4180500	752500	3200	05/20/00	--
Gretel's	21327	4227907	240711	6630	05/29/00	07/30/00
Grizzly	21332	4230500	269700	9600	--	08/28/00
Groundhog	21310	4238750	249400	8640	06/14/00	07/28/00
Gully	21317	4237000	247500	8660	06/20/00	07/28/00
Hay	21318	4234432	252998	8700	06/21/00	07/29/00
Iceberg	21315	4255666	259951	6465	06/02/00	08/02/00
Lower Adams Camp	21314	4258491	259312	7600	06/03/00	08/02/00
Lower Eagle	21309	4243164	252060	7253	06/22/00	07/31/00
Lower Gardner	21337	4264650	258200	8400	--	08/14/00
Lower Relief Valley	21316	4236200	258500	8200	06/23/00	--
Milk Ranch	21342	4265524	253591	8400	--	08/07/00
Montgomery	21313	4249972	244619	6280	06/06/00	08/22/00
Pacific Valley	21338	4267000	247000	7600	--	08/10/00
Randalls	21311	4250550	756500	7000	06/23/00	08/16/00
Saucer	21334	4236450	261800	8000	--	08/25/00

Table 17, cont.

Meadow	IBP Number	UTM_n	UTM_e	Elevation (ft)	Point Count Date	Mist-netting Date
Stanislaus	21312	4265672	244000	7800	06/30/00	08/11/00
Summit	21333	4228500	270700	9490	--	08/27/00
Tryon	21341	4265400	255700	8400	--	08/06/00
Upper Gardner	21339	4263150	257200	8560	--	08/08/00
West Bluff	21330	4237059	246107	8100	--	08/01/00
Willow I	21302	4238000	246750	7880	06/15/00	07/29/00
Willow II	21336	4268000	251000	7920	--	08/09/00
Wilson	21324	4205887	245568	4845	05/22/00	--
Wolfin	21329	4211500	761000	5200	05/31/00	07/21/00

Table 18. Priority ranking for Stanislaus National Forest meadows. All meadows listed in order of priority within each ranking category.

High Priority
Ackerson
Bell
Eagle
Lower Relief Valley
Ackerson South
Randalls
Bluff
Hay
Willow I
Gretel's
Upper Gardner
Tryon
Greely Hill

Medium Priority
Barn
Lower Eagle
Big Prather
Groundhog
Pacific Valley
East Randalls
Stanislaus
Lower Gardner
Bourland
Lower Adams Camp
Iceburg
Milk Ranch
Montgomery
West Bluff
Gully
Grizzly
Summit
Clavey
Anderson Flat

Low Priority
Deer Flat
Wilson
Wolfin
Emigrant
Saucer
Corral
Gardner
Willow II

Table 19. Summary results of Stanislaus National Forest point count surveys.

Meadow	Points	Species	Individuals	Species per Point	Individuals per Point
Ackerson (21326)	15	31	205	2.07	13.67
Ackerson South (21325)	13	33	234	2.54	18.00
Anderson Flat (21320)	5	25	57	5.00	11.40
Barn (21304)	6	20	75	3.33	12.50
Bell (21328)	17	32	214	1.88	12.59
Bourland (21301)	3	16	36	5.33	12.00
Clavey (21308)	5	19	68	3.8	13.60
Deer Flat (21319)	7	21	63	3.00	9.00
Eagle (21303)	15	39	222	2.60	14.80
East Randalls (21300)	5	25	70	5.00	14.00
Gardner (21305)	4	14	44	3.50	11.00
Greely Hill (21323)	17	25	159	1.47	9.35
Gretel's (21327)	5	19	49	3.80	9.80
Groundhog (21310)	4	11	25	2.75	6.25

Table 19, cont.

Meadow	Points	Species	Individuals	Species per Point	Individuals per Point
Gully (21317)	4	12	52	3.00	13.00
Hay (21318)	9	10	55	1.11	6.11
Iceburg (21315)	5	24	53	4.80	10.60
Lower Adams Camp (21314)	5	22	45	4.40	9.00
Lower Eagle (21309)	3	16	44	5.33	14.67
Lower Relief Valley (21316)	12	20	114	1.67	9.50
Montgomery (21313)	2	16	29	8.00	14.50
Randalls (21311)	8	18	71	2.25	8.88
Stanislaus (21312)	4	25	83	6.25	20.75
Willow I (21302)	6	18	57	3.00	9.50
Wilson (21324)	5	17	36	3.40	7.20
Wolfin (21329)	3	21	44	7.00	14.67

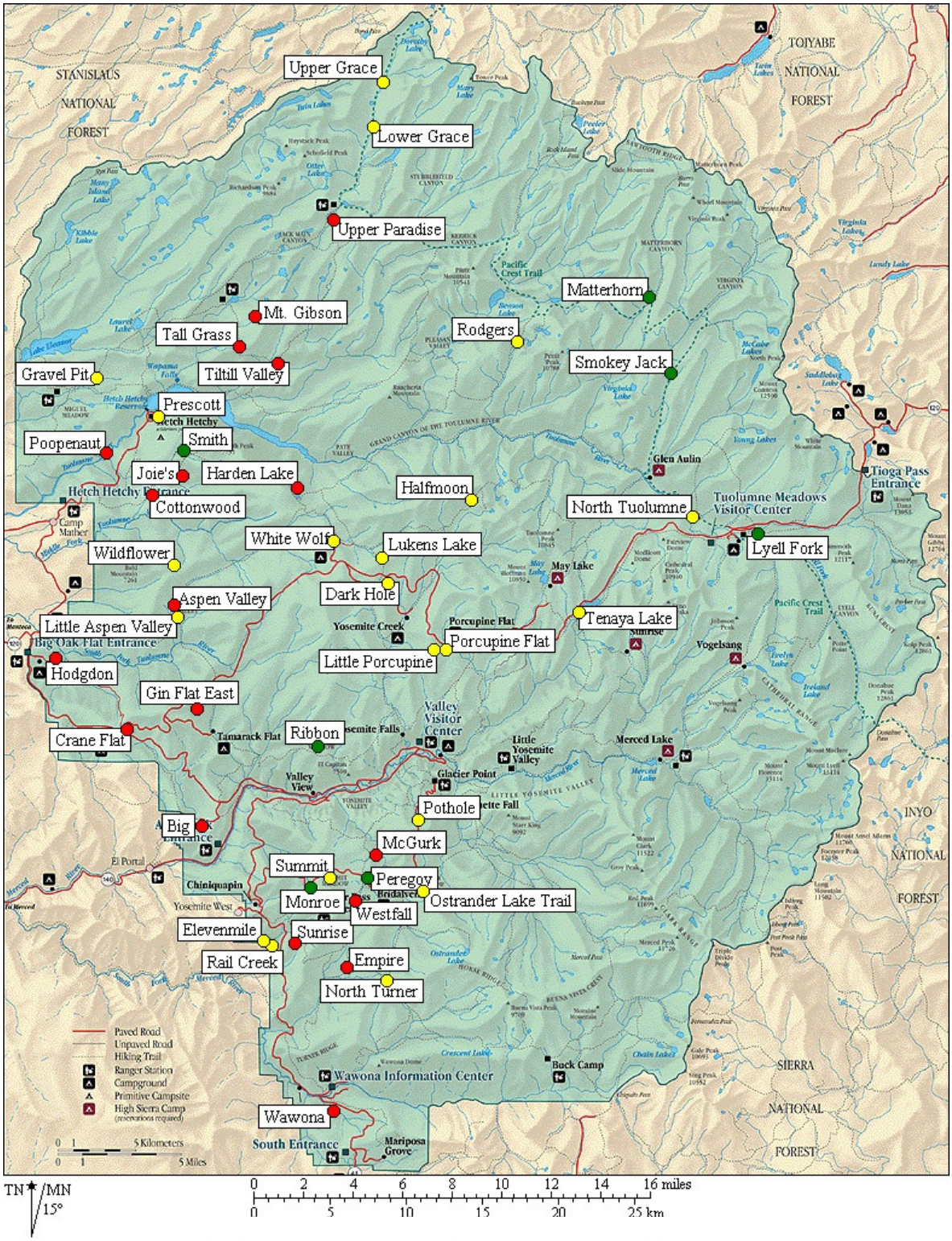
Table 20. Summary results of Stanislaus National Forest mist net surveys.

Meadow	Net-hours (n-h)	Species	Species/n-h	Known Juveniles	Known Juveniles/n-h	Known Adults	Known Adults/n-h	Total Birds	Total Birds/n-h	% Juveniles
Ackerson (21326)	31.8	18	0.57	31	0.97	39	1.23	73	2.30	44.3
Ackerson South (21325)	25.5	12	0.47	14	0.55	18	0.71	36	1.41	43.8
arn (21304)	33.2	20	0.60	30	0.90	32	0.96	66	1.99	48.4
Bell (21328)	27.2	18	0.66	20	0.74	48	1.76	74	2.72	29.4
Big Prather (21340)	32.3	10	0.31	74	2.29	7	0.22	89	2.76	91.4
Bluff (21331)	36.0	21	0.58	80	2.22	24	0.67	107	2.97	76.9
Bourland (21301)	36.0	11	0.31	8	0.22	13	0.36	22	0.61	38.1
Corral (21343)	36.0	4	0.11	10	0.28	2	0.06	13	0.36	83.3
Eagle (21303)	35.0	12	0.34	10	0.29	16	0.46	27	0.77	38.5
Emigrant (21335)	36.0	1	0.03	1	0.03	0	0.00	1	0.03	100.0
Gretel's (21327)	31.5	25	0.79	52	1.65	24	0.76	78	2.48	68.4
Grizzly (21332)	36.0	5	0.14	9	0.25	1	0.03	12	0.33	90.0
Groundhog (21310)	36.0	11	0.31	31	0.86	20	0.56	53	1.47	60.8
Gully (21317)	34.5	9	0.26	13	0.38	9	0.26	23	0.67	40.6
Hay (21318)	36.0	20	0.56	55	1.53	22	0.61	82	2.28	71.4

Table 20, cont.

Meadow	Net-hours (n-h)	Species	Species/n-h	Known Juveniles	Known Juveniles/n-h	Known Adults	Known Adults/n-h	Total Birds	Total Birds/n-h	% Juveniles
Iceberg (21315)	32.7	9	0.28	16	0.49	6	0.18	24	0.73	72.7
Lower Adams Camp (21314)	34.5	13	0.38	16	0.46	15	0.43	36	1.04	51.6
Lower Eagle (21309)	35.0	13	0.37	17	0.49	13	0.37	30	0.86	56.7
Lower Gardner (21337)	26.3	8	0.30	61	2.32	3	0.11	66	2.51	95.3
Milk Ranch (21342)	32.5	12	0.37	28	0.86	9	0.28	40	1.23	75.7
Montgomery (21313)	35.0	8	0.23	13	0.37	3	0.09	19	0.54	81.3
Pacific Valley (21338)	36.0	13	0.36	64	1.78	10	0.28	75	2.08	86.5
Randalls (21311)	35.0	11	0.31	93	2.66	16	0.46	117	3.34	85.3
Saucer (21334)	36.0	5	0.14	4	0.11	3	0.08	8	0.22	57.1
Stanislaus (21312)	37.0	10	0.27	44	1.19	7	0.19	53	1.43	86.3
Summit (21333)	36.0	8	0.22	25	0.69	3	0.08	30	0.83	89.3
Tryon (21341)	36.0	14	0.39	26	0.72	10	0.28	38	1.06	72.2
Upper Gardner (21339)	33.5	12	0.36	87	2.60	7	0.21	99	2.96	92.6
West Bluff (21330)	34.7	11	0.32	25	0.72	12	0.35	38	1.10	67.6
Willow I (21302)	34.5	14	0.41	25	0.72	13	0.38	43	1.25	65.8
Willow II (21336)	32.0	8	0.25	9	0.28	3	0.09	15	0.47	75.0
Wolfin (21329)	30.0	8	0.27	7	0.23	9	0.30	18	0.60	43.8

Figure 1. Meadows surveyed at Yosemite National Park. Red circles indicate high priority sites, green circles indicate medium priority, and yellow circles indicate low priority.



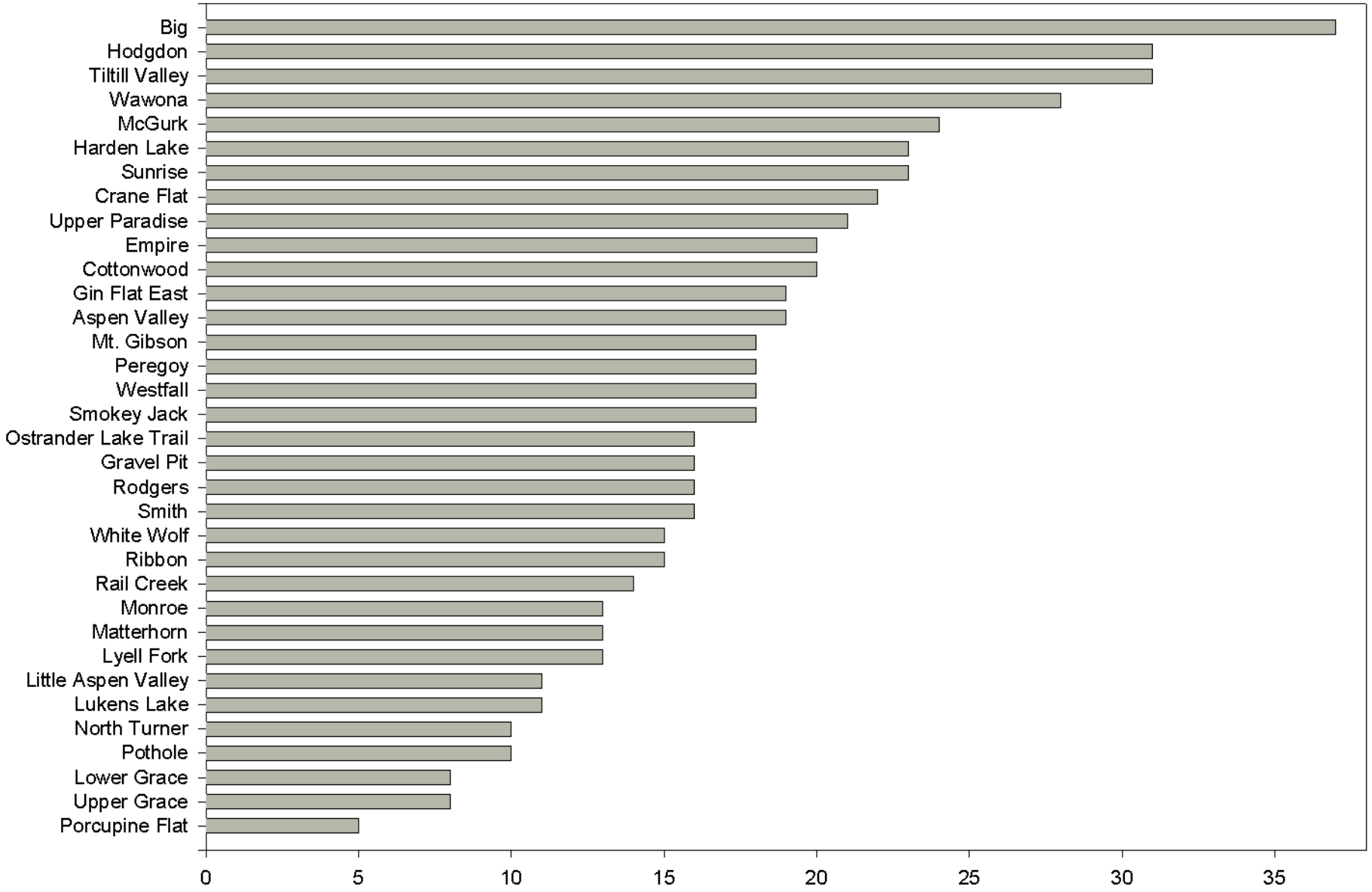


Figure 2. Number of species detected during point counts at Yosemite National Park meadows.

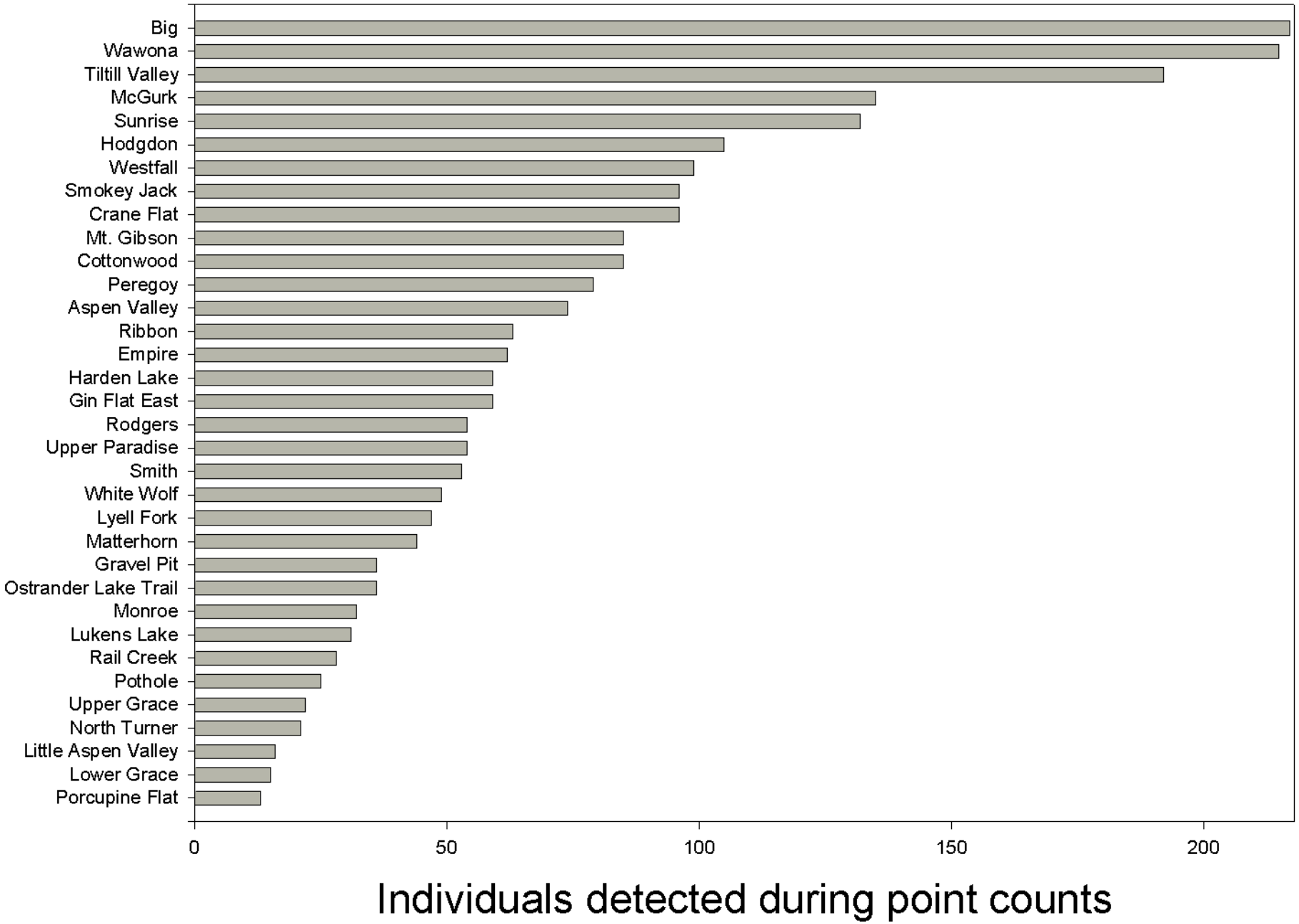


Figure 3. Number of individual birds detected during point counts at Yosemite National Park meadows.

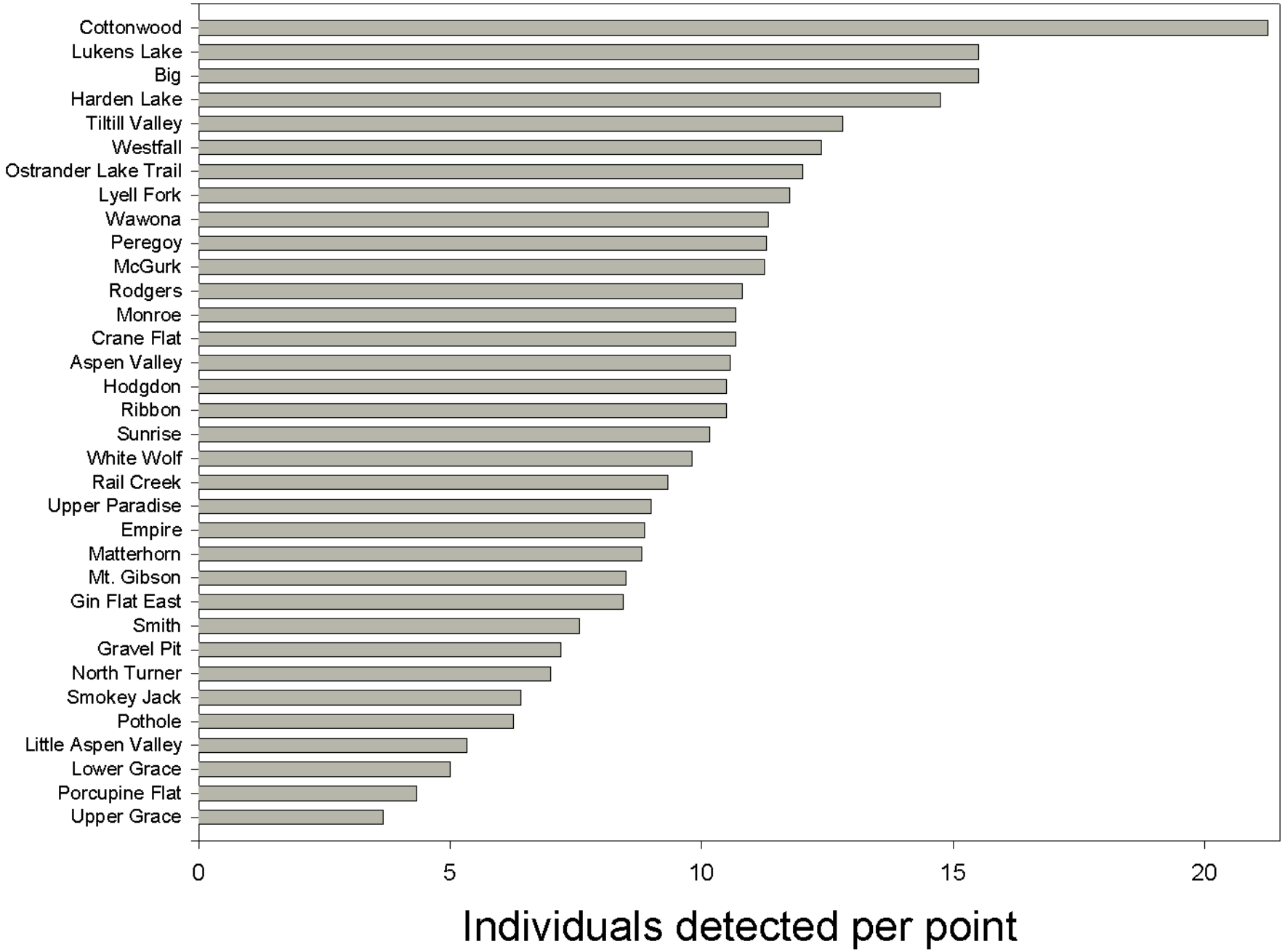


Figure 4. Number of birds detected per point at Yosemite National Park meadows.

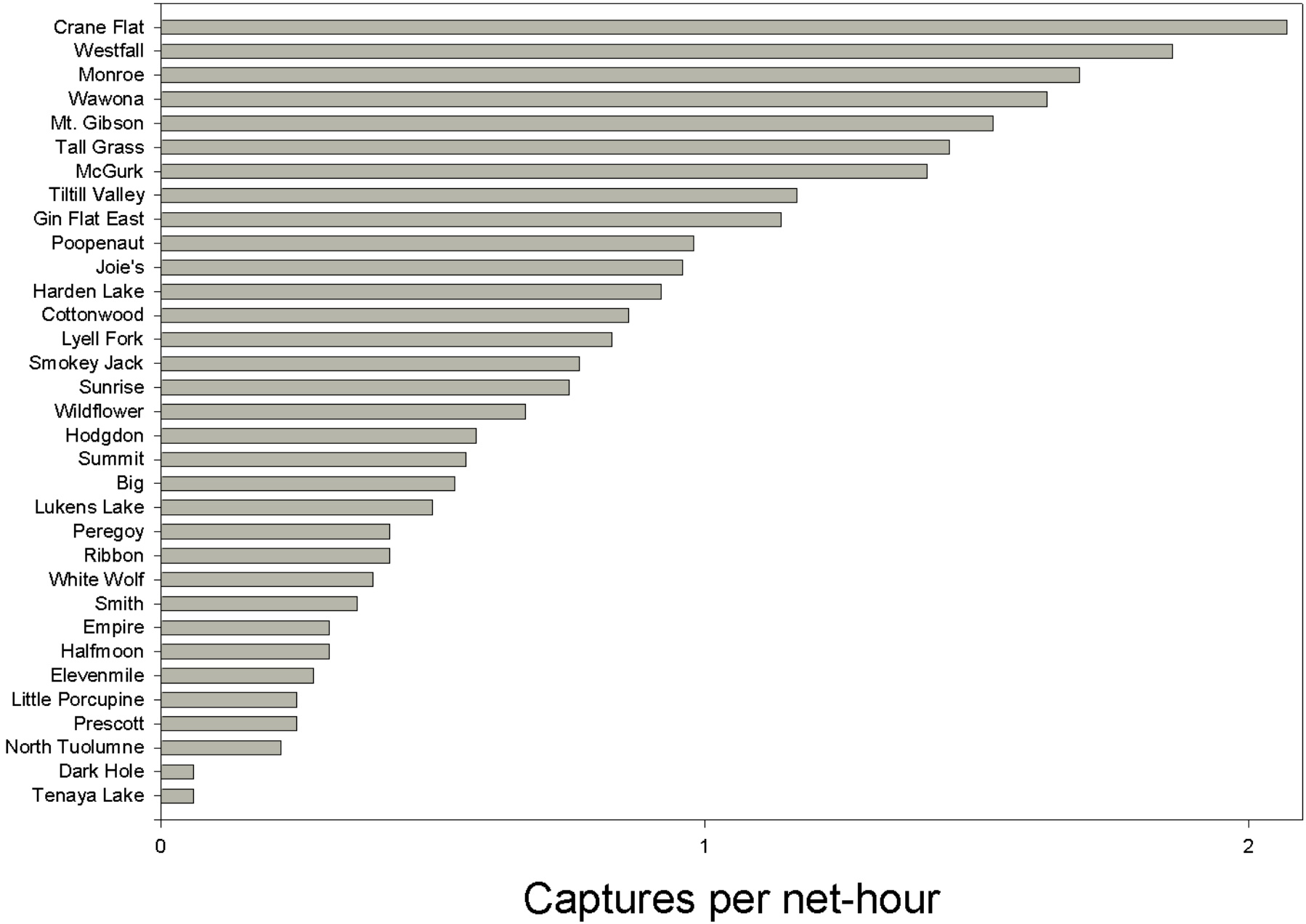
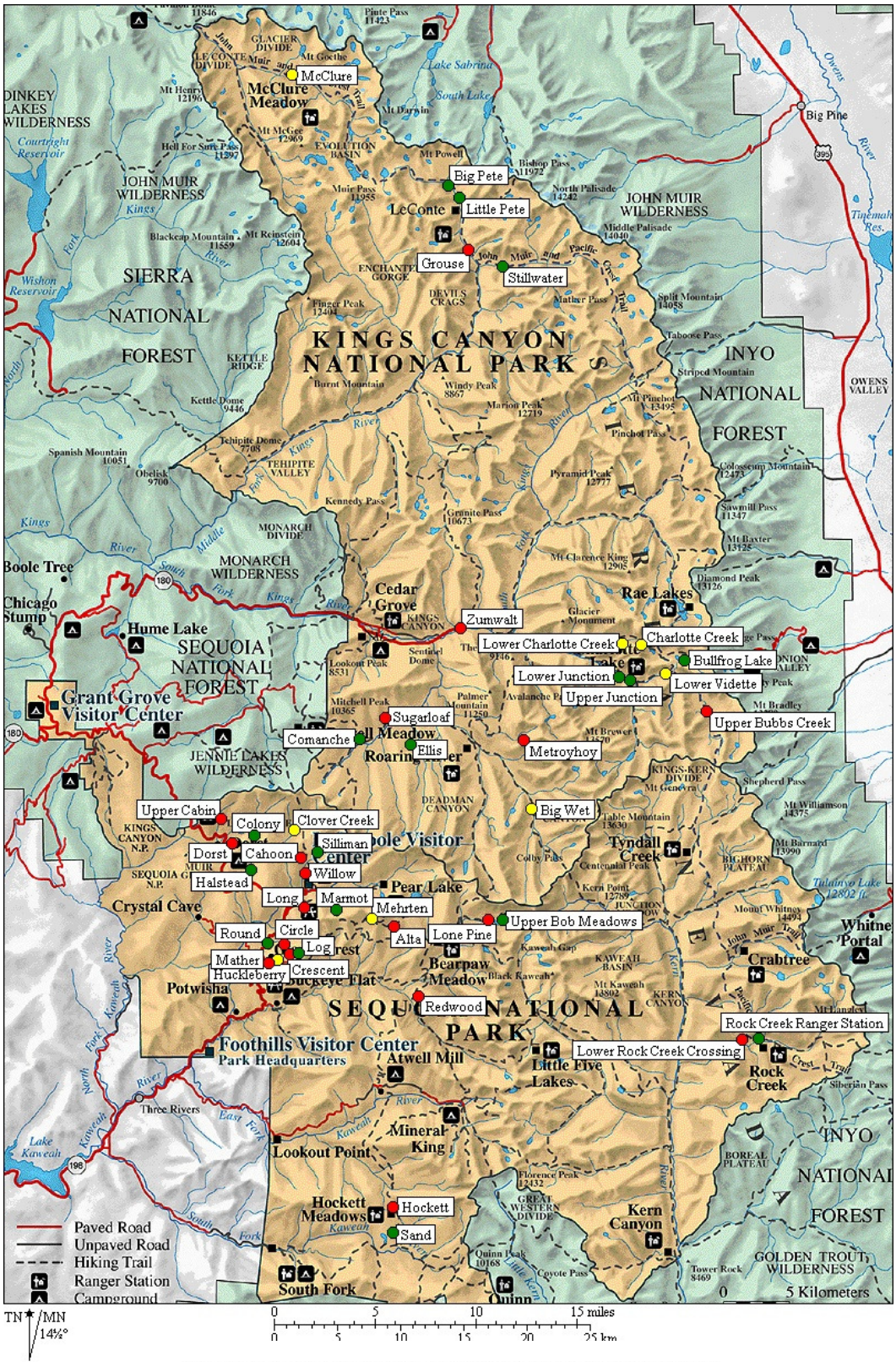


Figure 5. Number of birds captured per net-hour at Yosemite National Paprk Meaows (all species pooled).

Figure 6. Meadows surveyed at Sequoia/Kings Canyon National Park. Red circles indicate high priority sites, green circles indicate medium priority, and yellow circles indicate low priority.



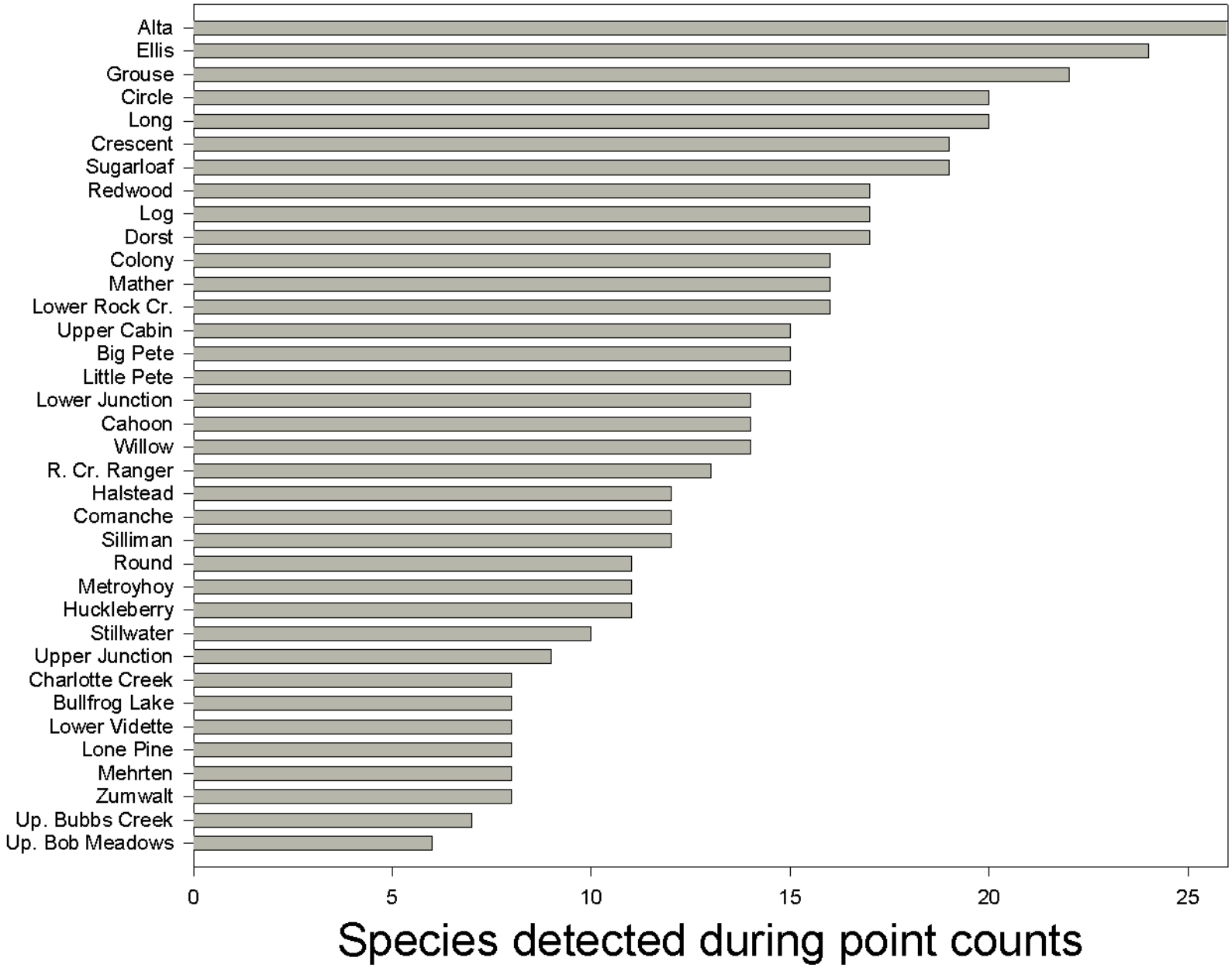


Figure 7. Number of species detected during point counts at Sequoia Kings Canyon National Parks meadows.

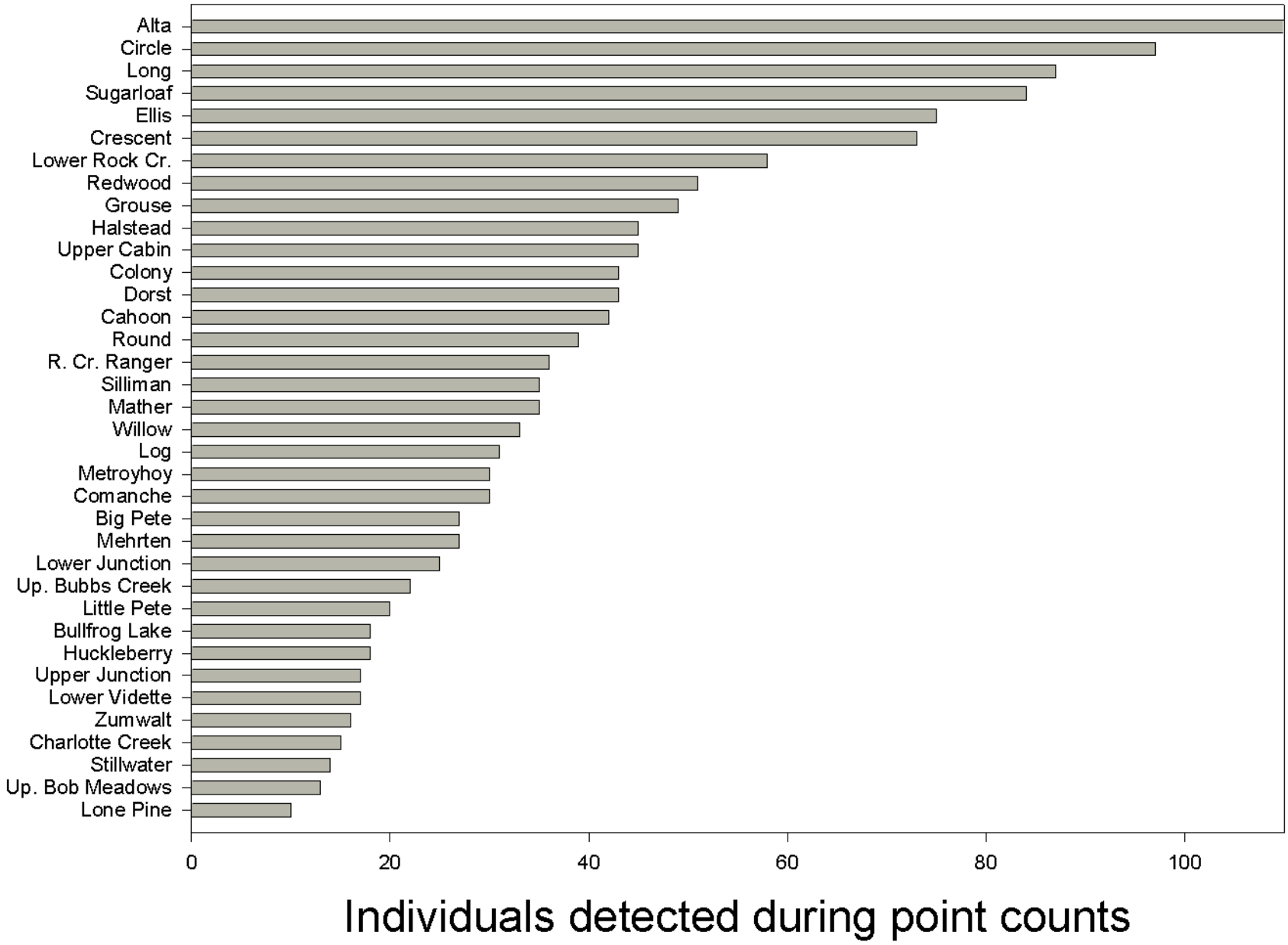


Figure 8. Number of individual birds detected during point counts at Stanislaus National Forest meadows.

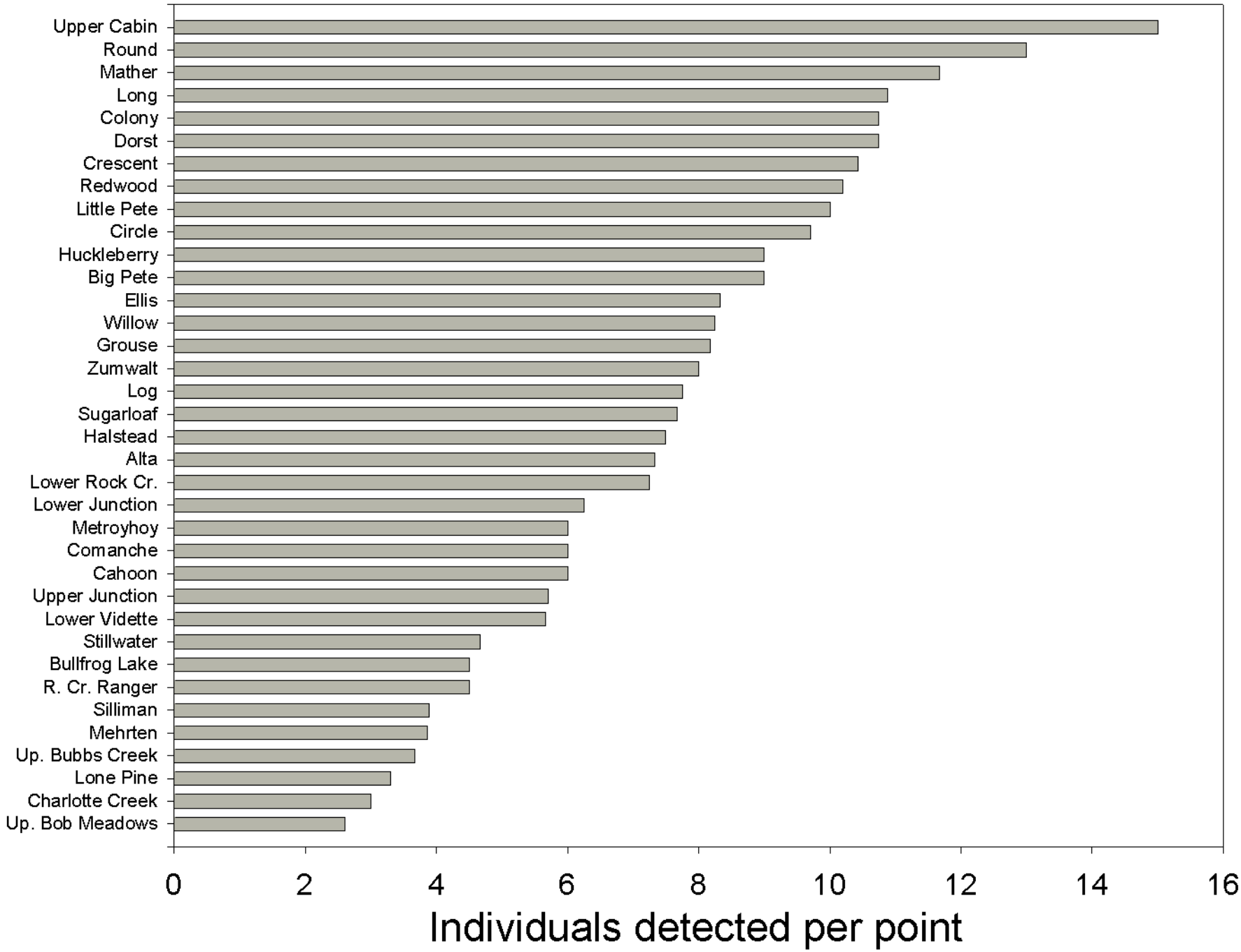


Figure 9. Number of birds detected per point at Sequoia/Kings Canyon National Parks meadows.

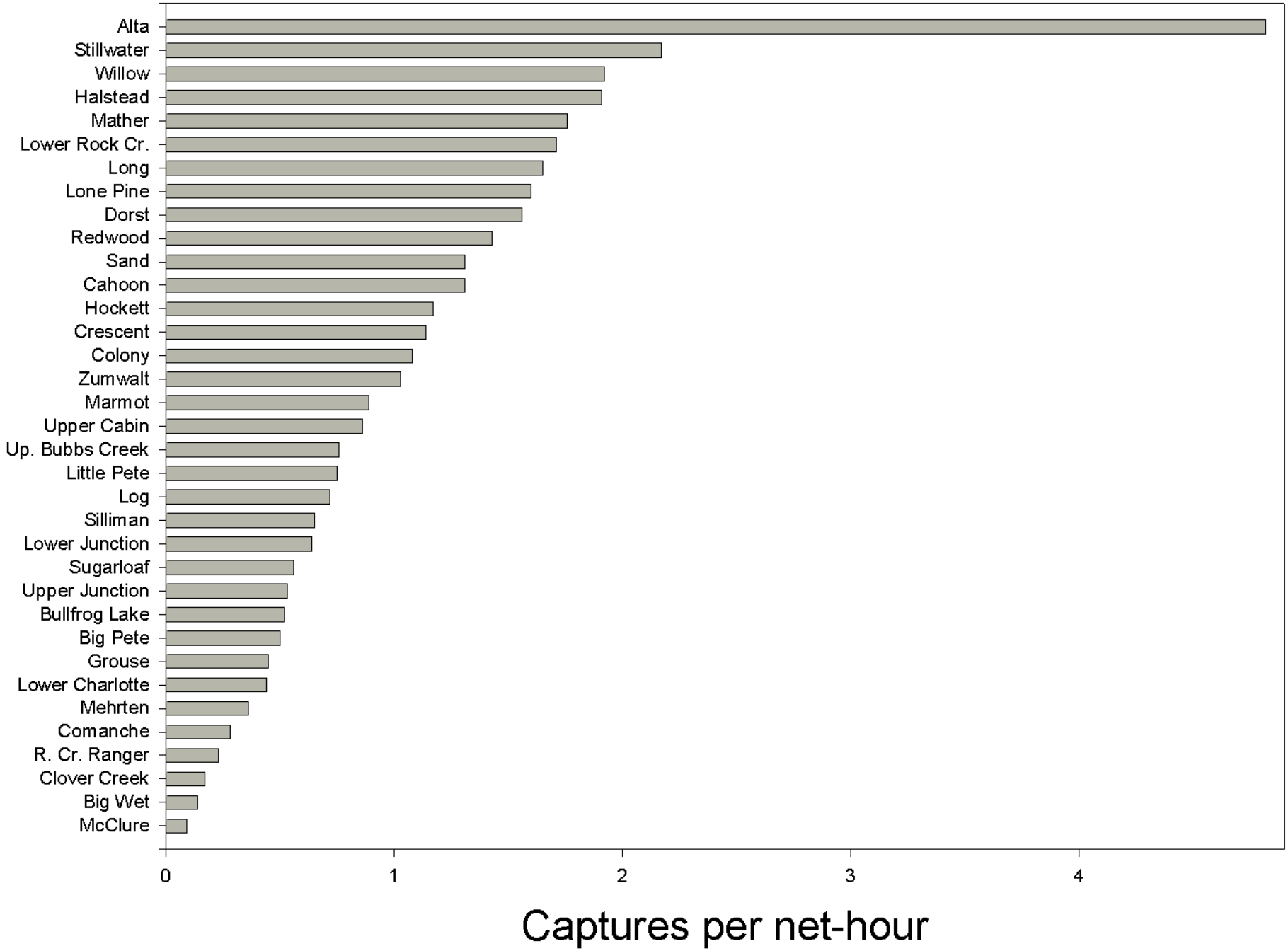
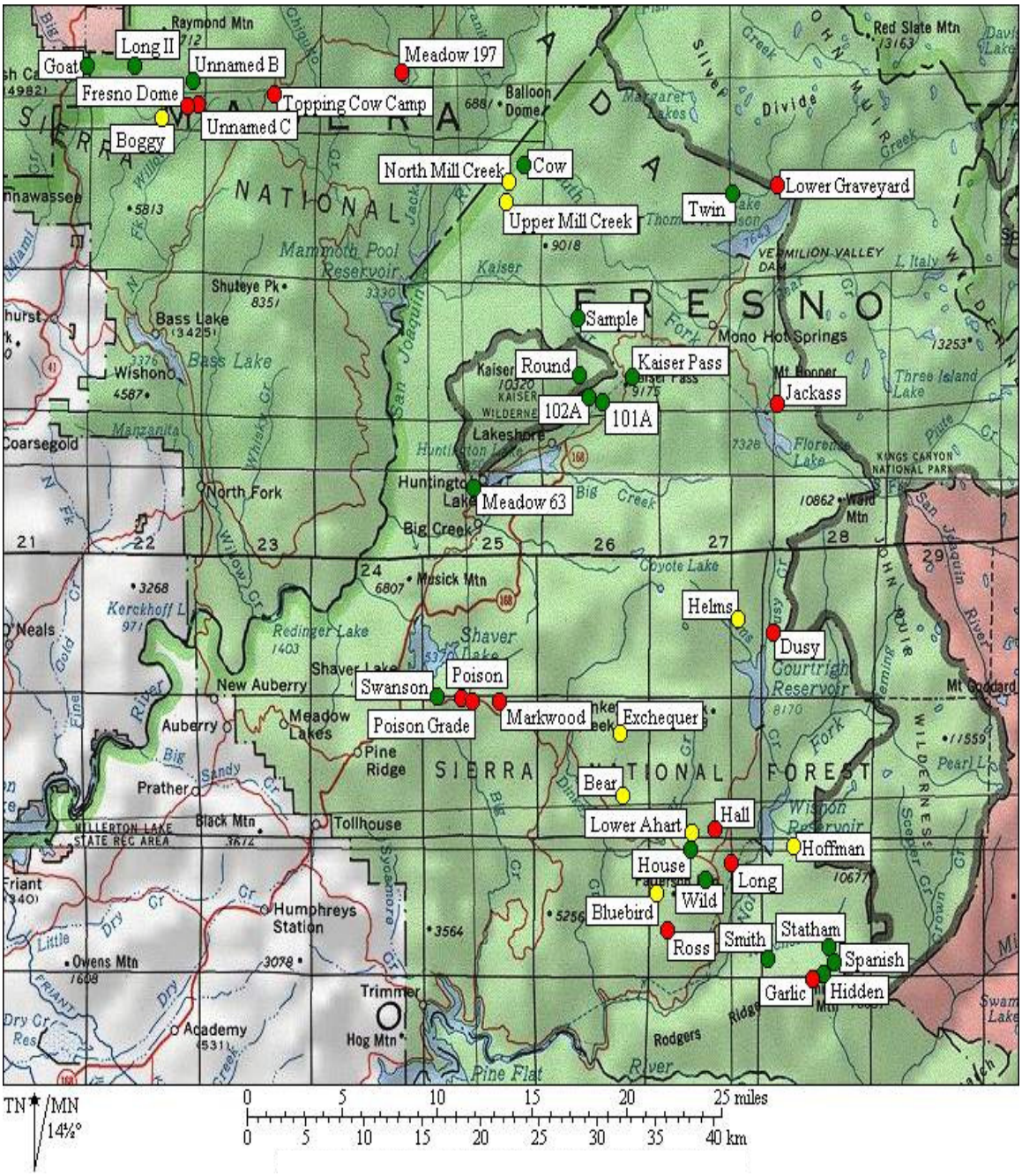


Figure 10. Number of birds captured per net-hour at Sequoia/Kings Canyon National Parks meadows (all species pooled).

Figure 11. Meadows surveyed at Sierra National Forest. Red circles indicate high priority sites, green circles indicate medium priority, and yellow circles indicate low priority.



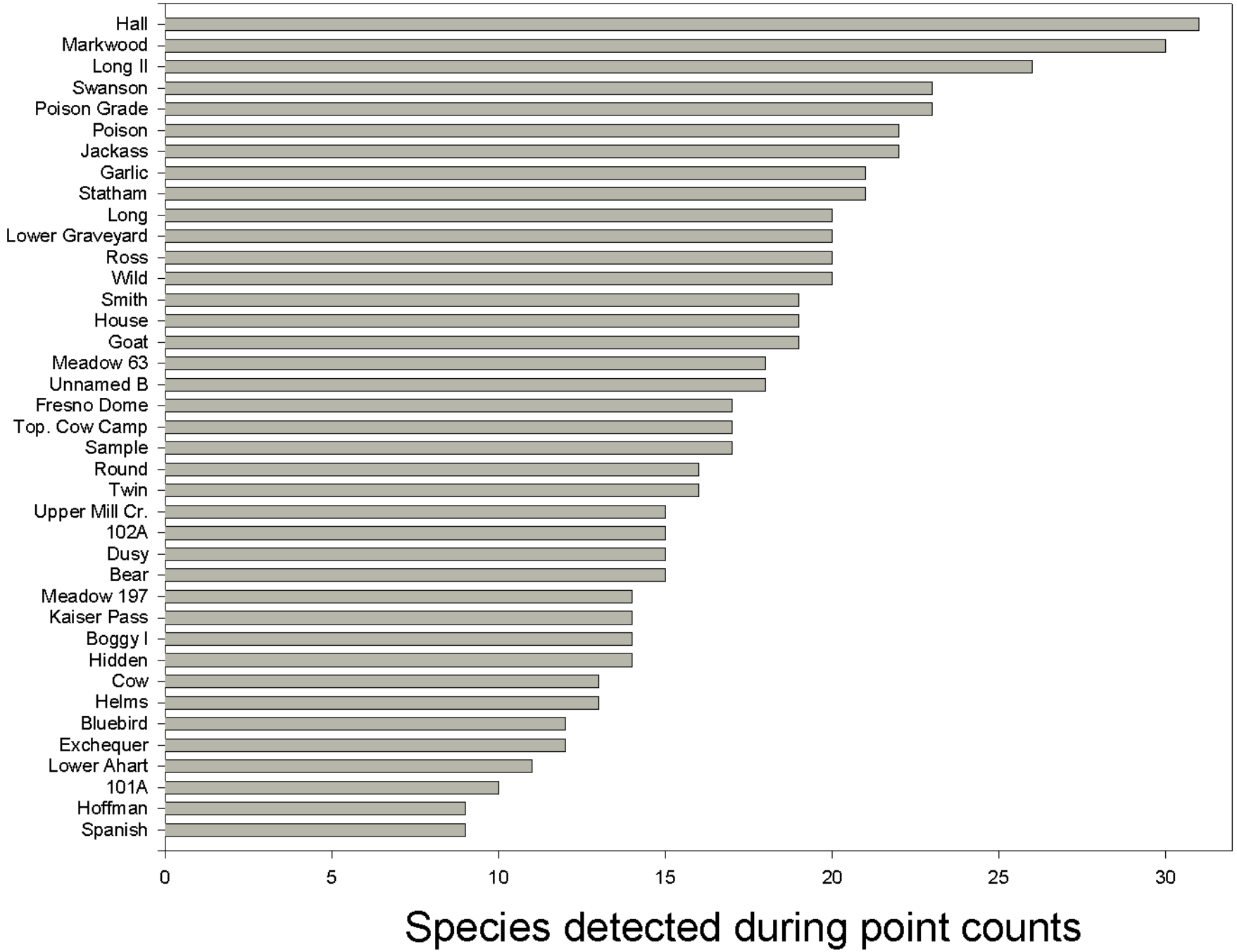


Figure 12. Number of species detected during point counts at Sierra National Forest meadows.

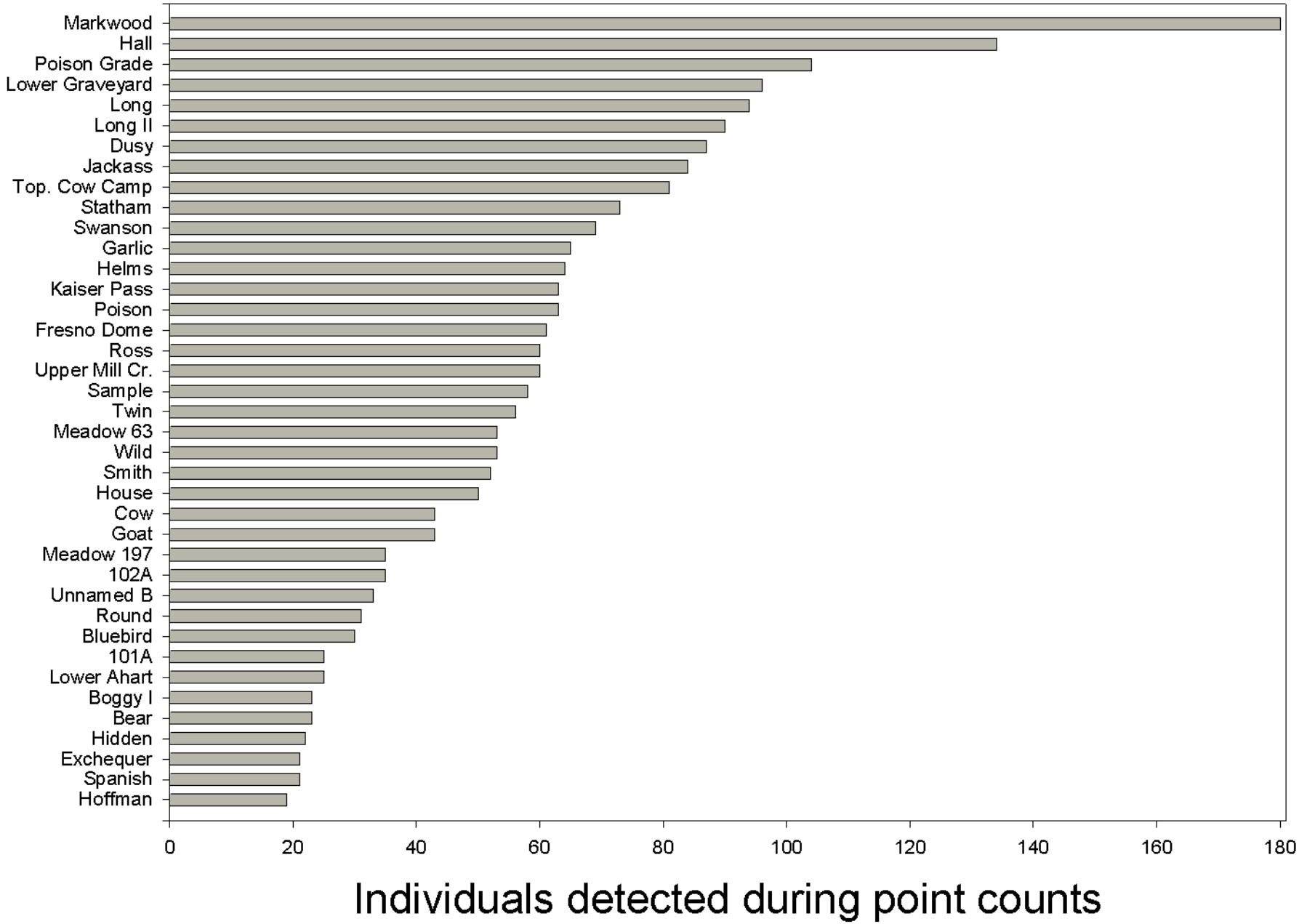


Figure 13. Number of individual birds detected during point counts at Sierra National Forest meadows.

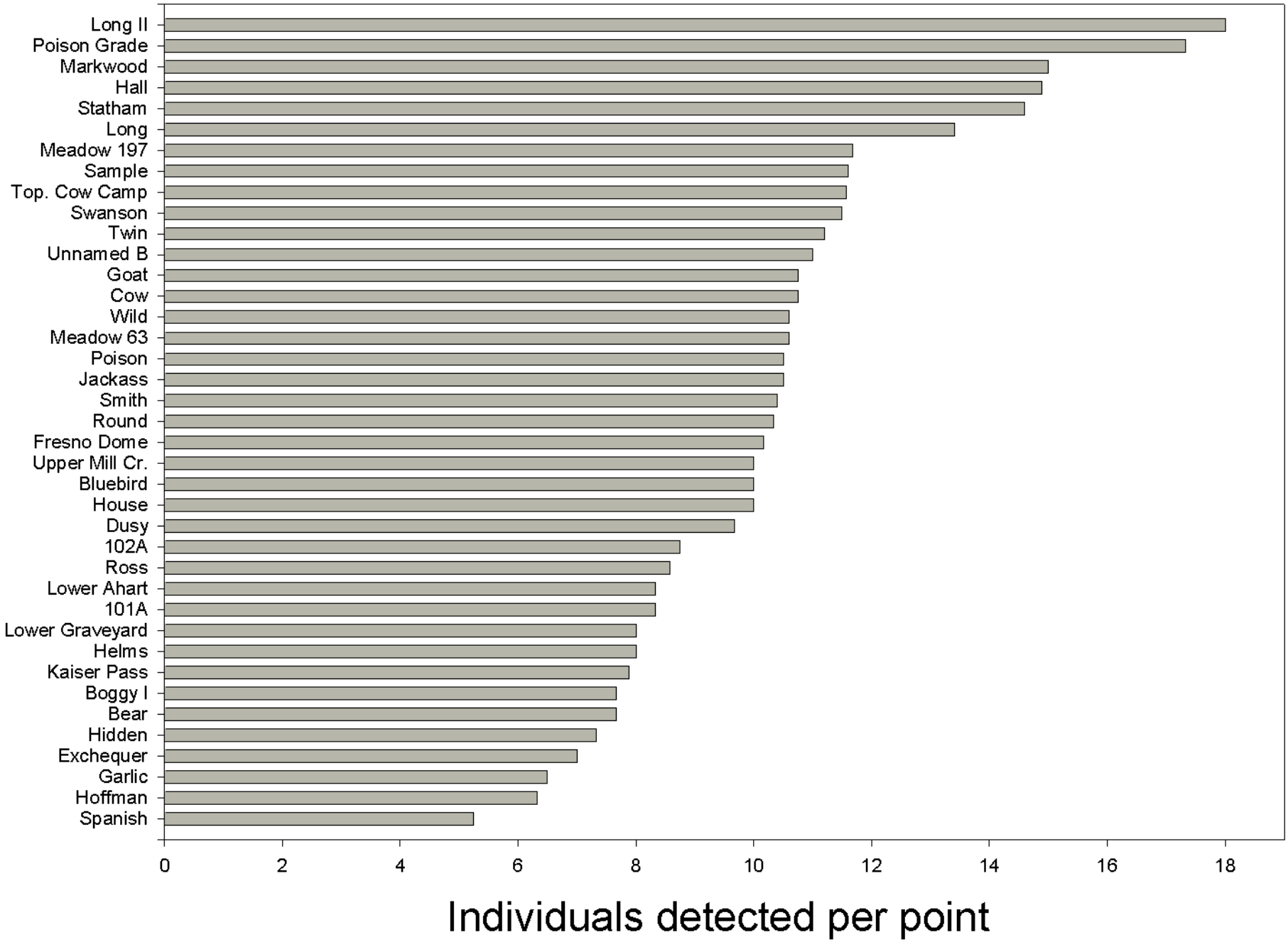


Figure 14. Number of birds detected per point at Sierra National Forest meadows.

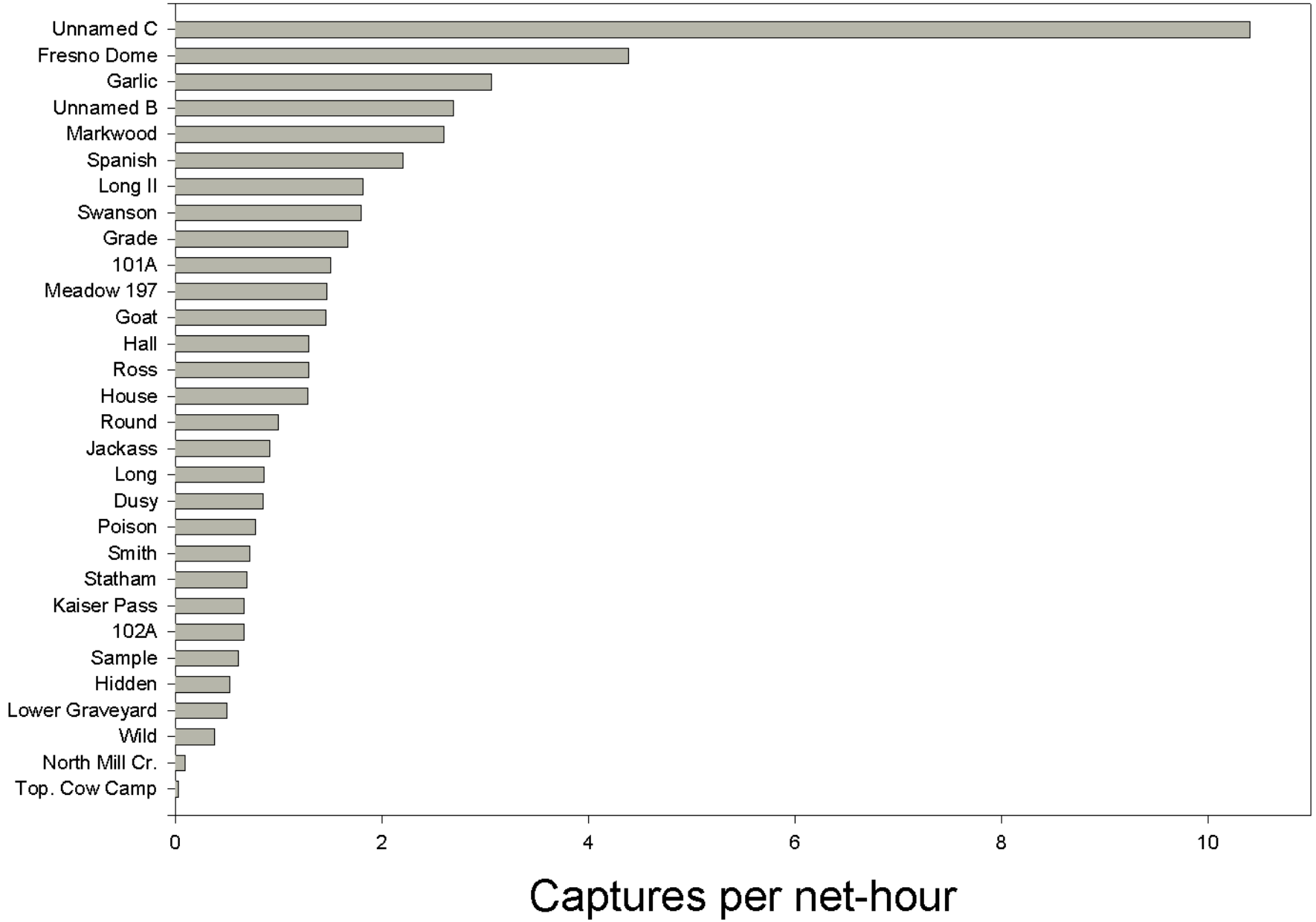
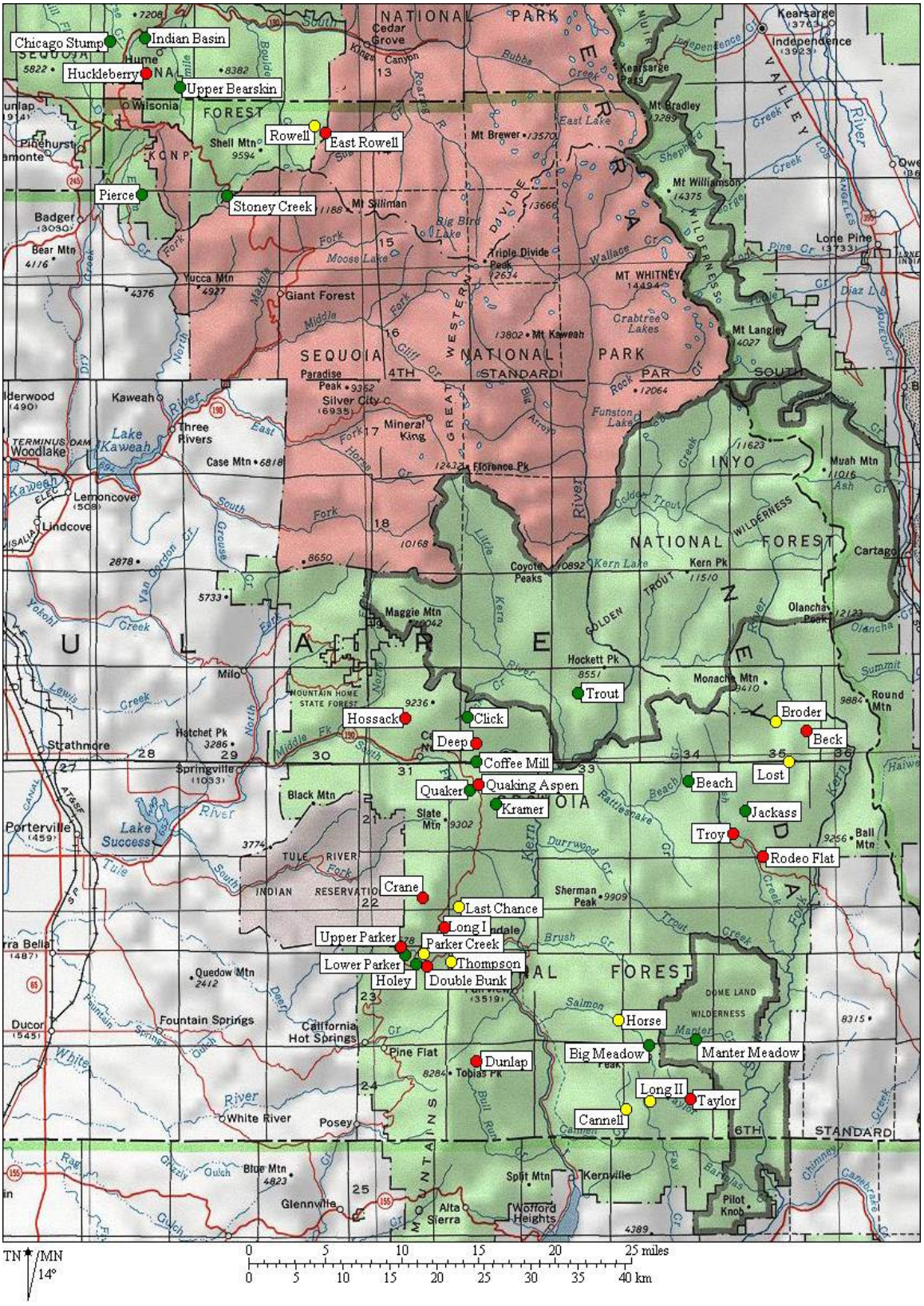


Figure 15. Number of birds captured per net-hour at Sierra National Forest meadows (all spacies pooled).

Figure 16. Meadows surveyed at Sequoia National Forest. Red circles indicate high priority sites, green circles indicate medium priority, and yellow circles indicate low priority.



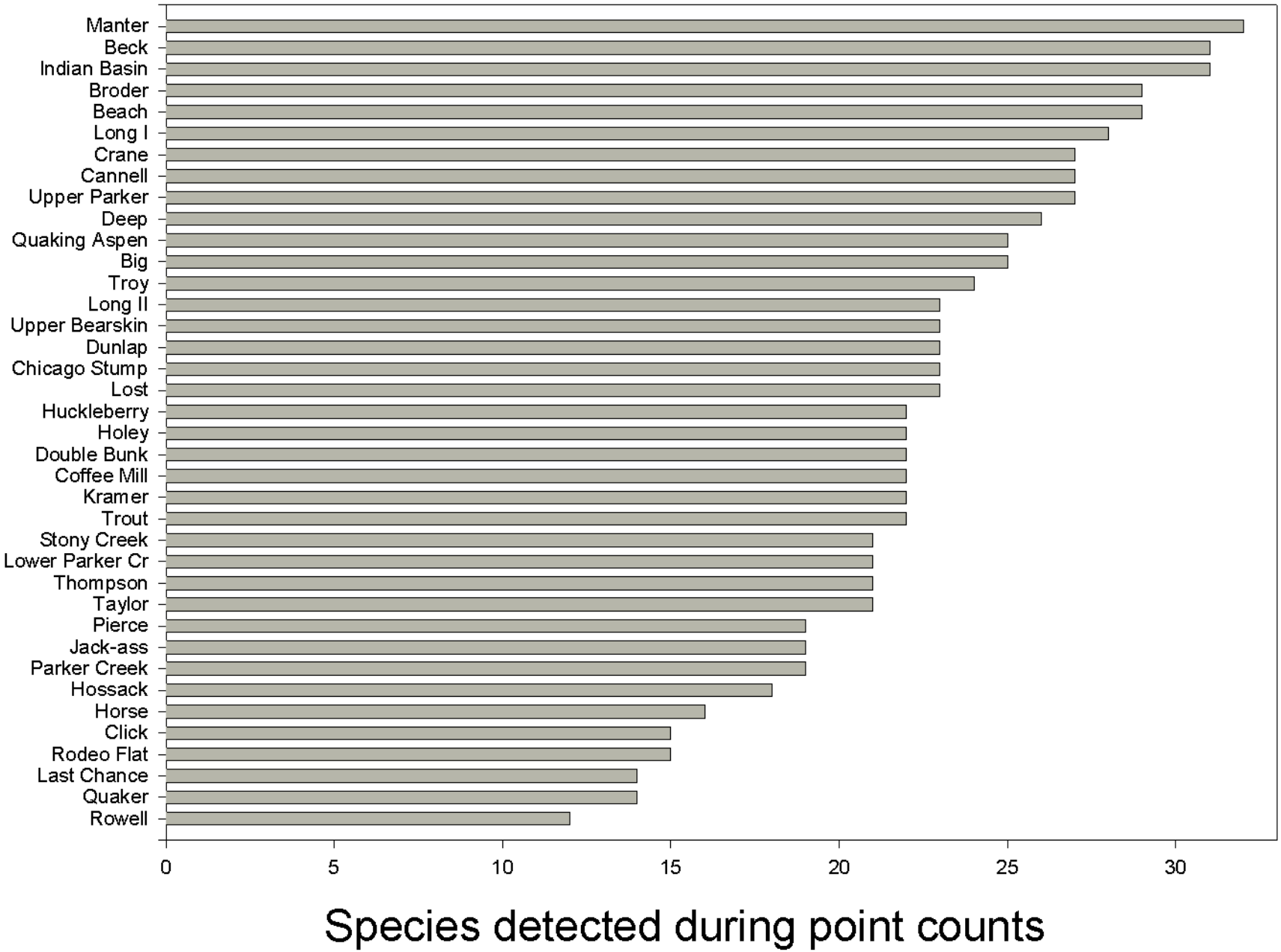


Figure 17. Number of species detected during point counts at Sequoia National Forest meadows.

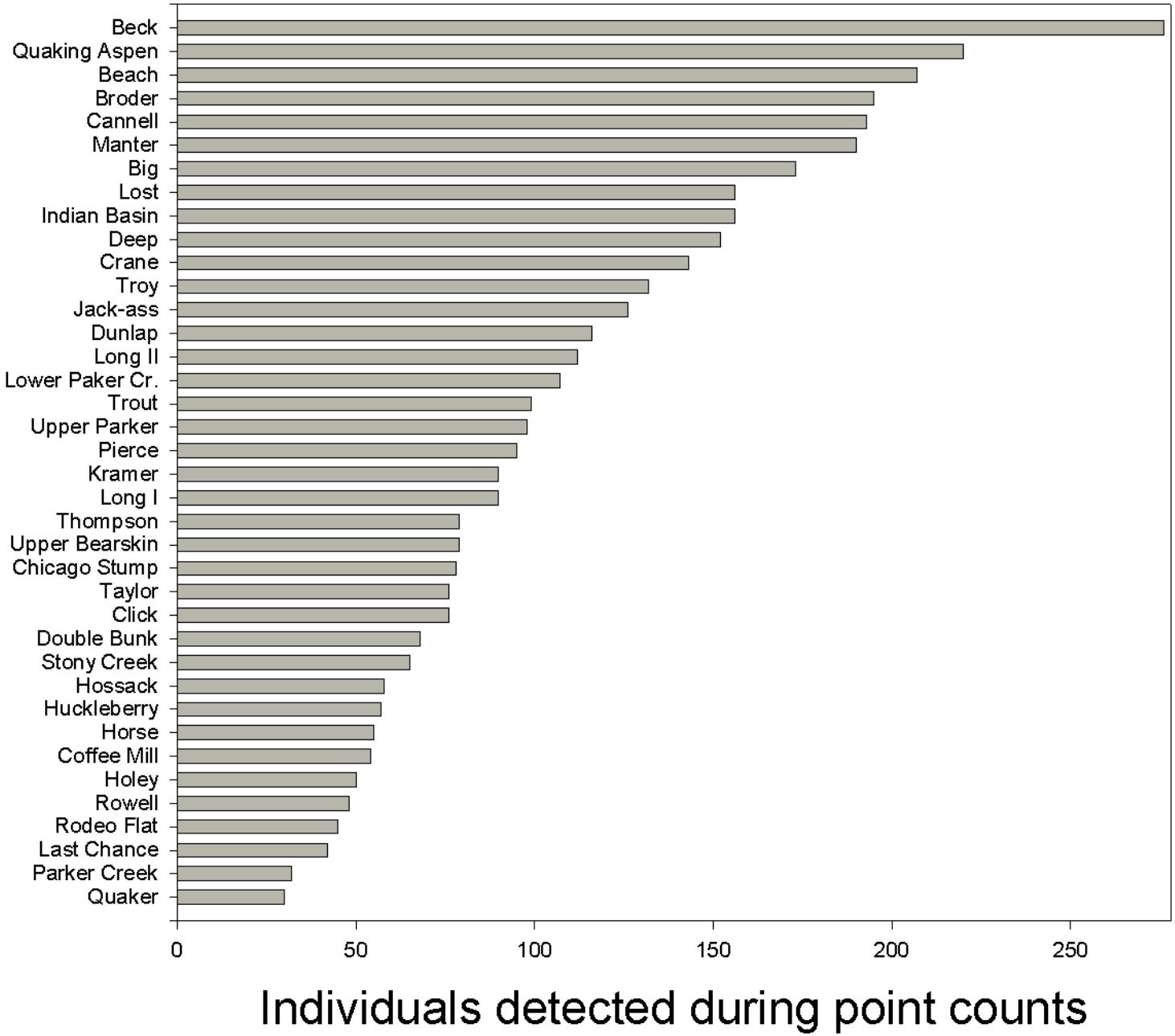


Figure 18. Number of indiividual birds detected during point counts at Sequoia Natioanl Forest meadows.

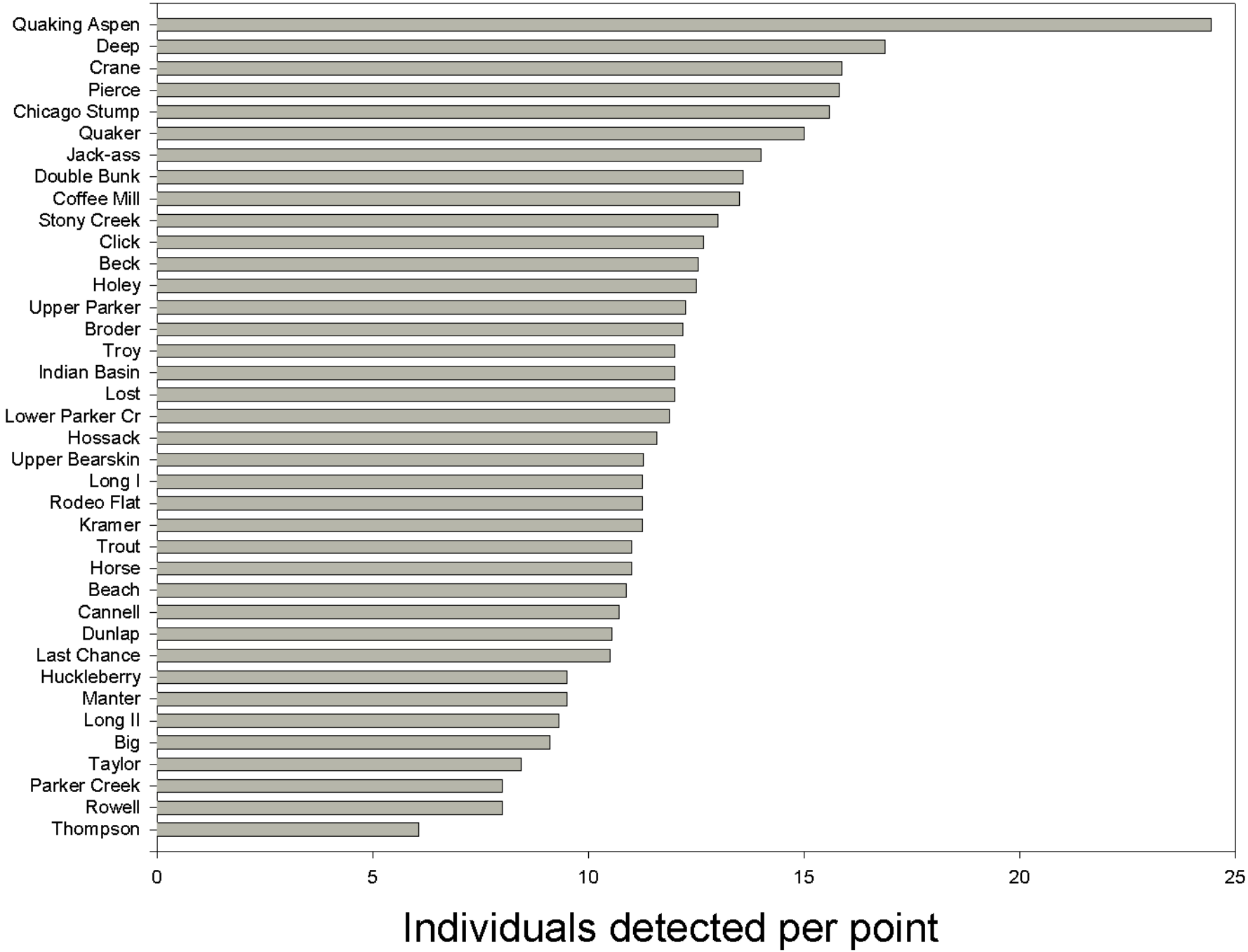


Figure 19. Number of birds detected per point at Sequoia National Forest meadows.

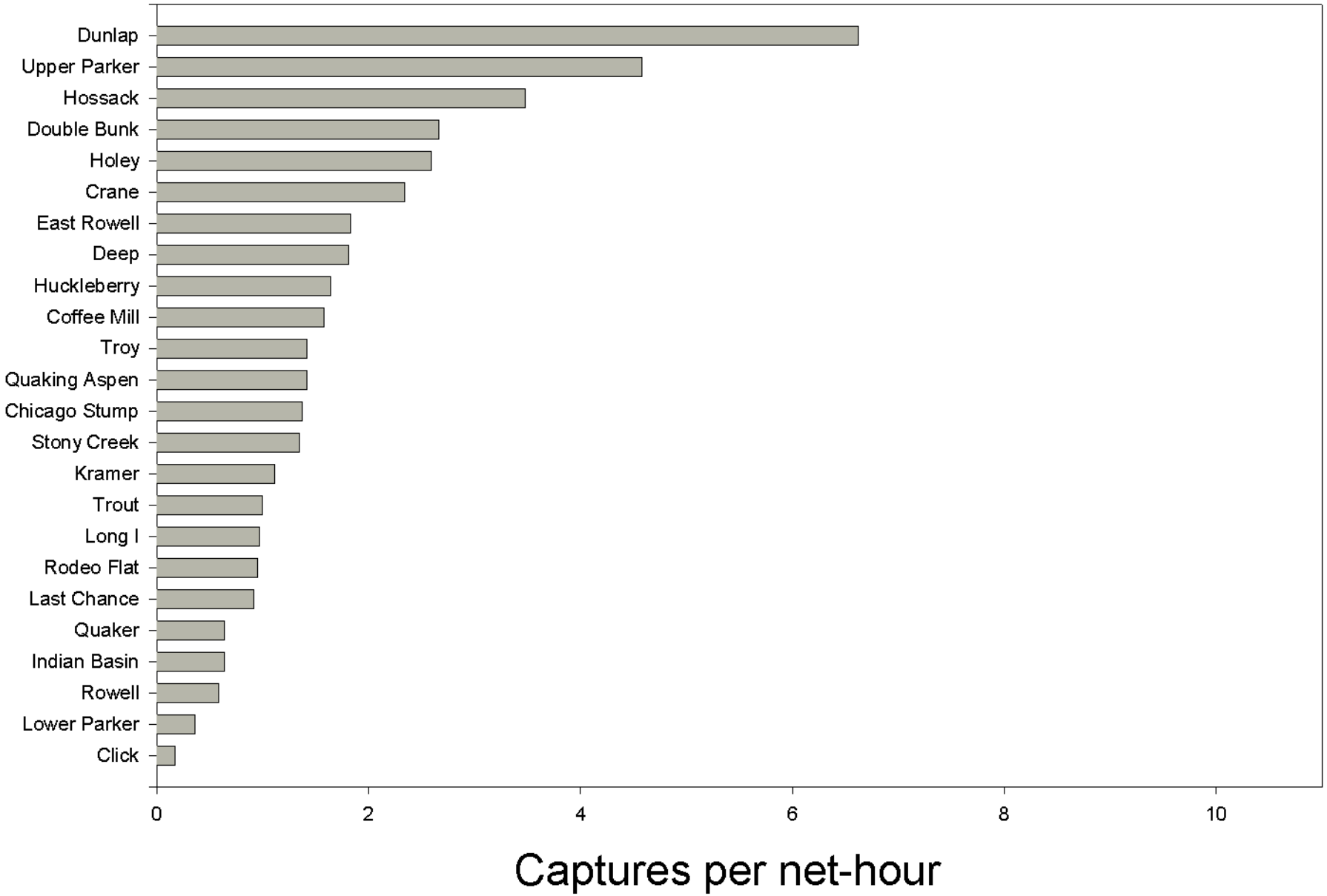
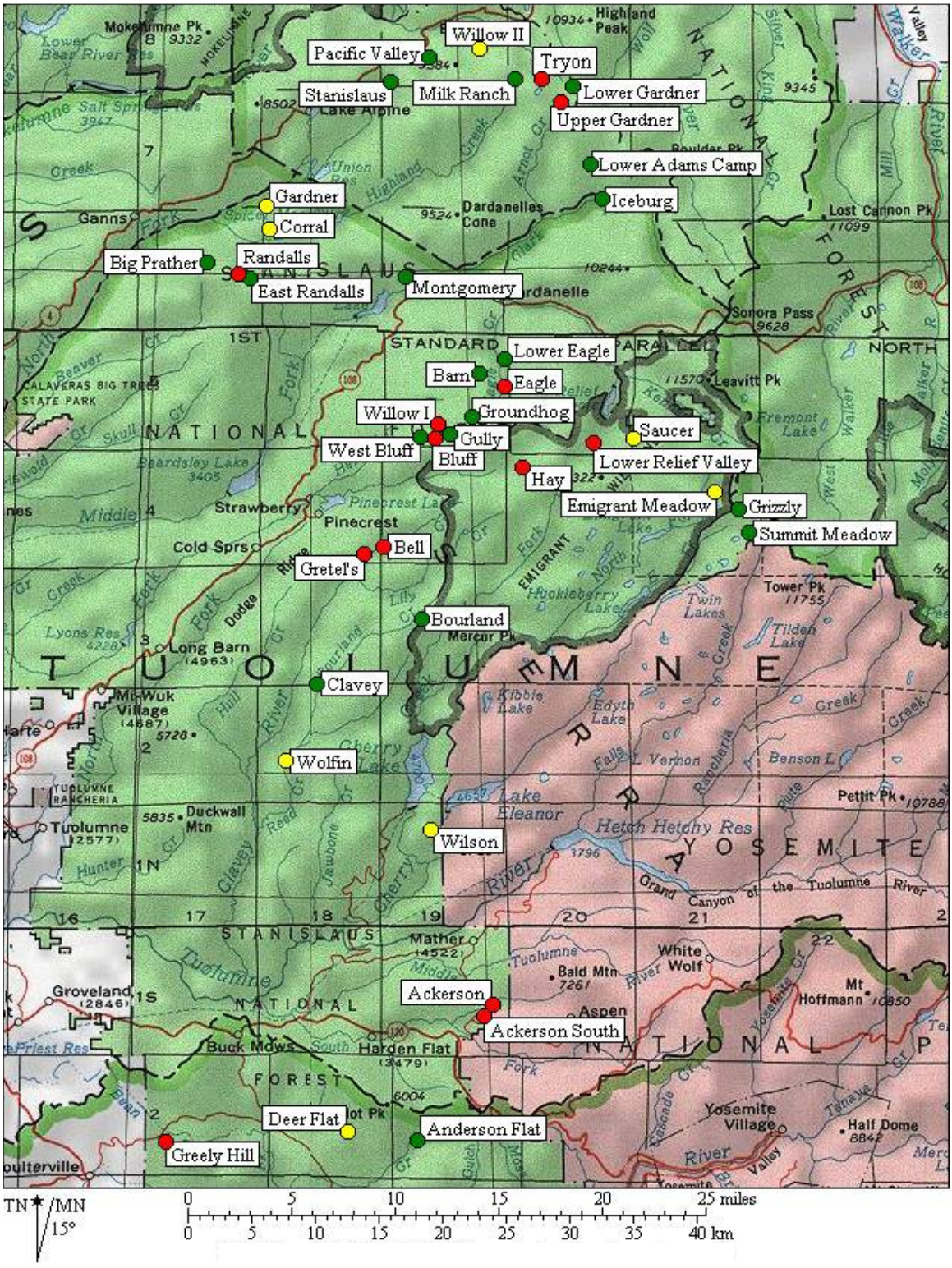


Figure 20. Number of birds captures per net-hour at Sequoia National Forest meadows.

Figure 21. Meadows surveyed at Stanislaus National Forest. Red circles indicate high priority sites, green circles indicate medium priority, and yellow circles indicate low priority.



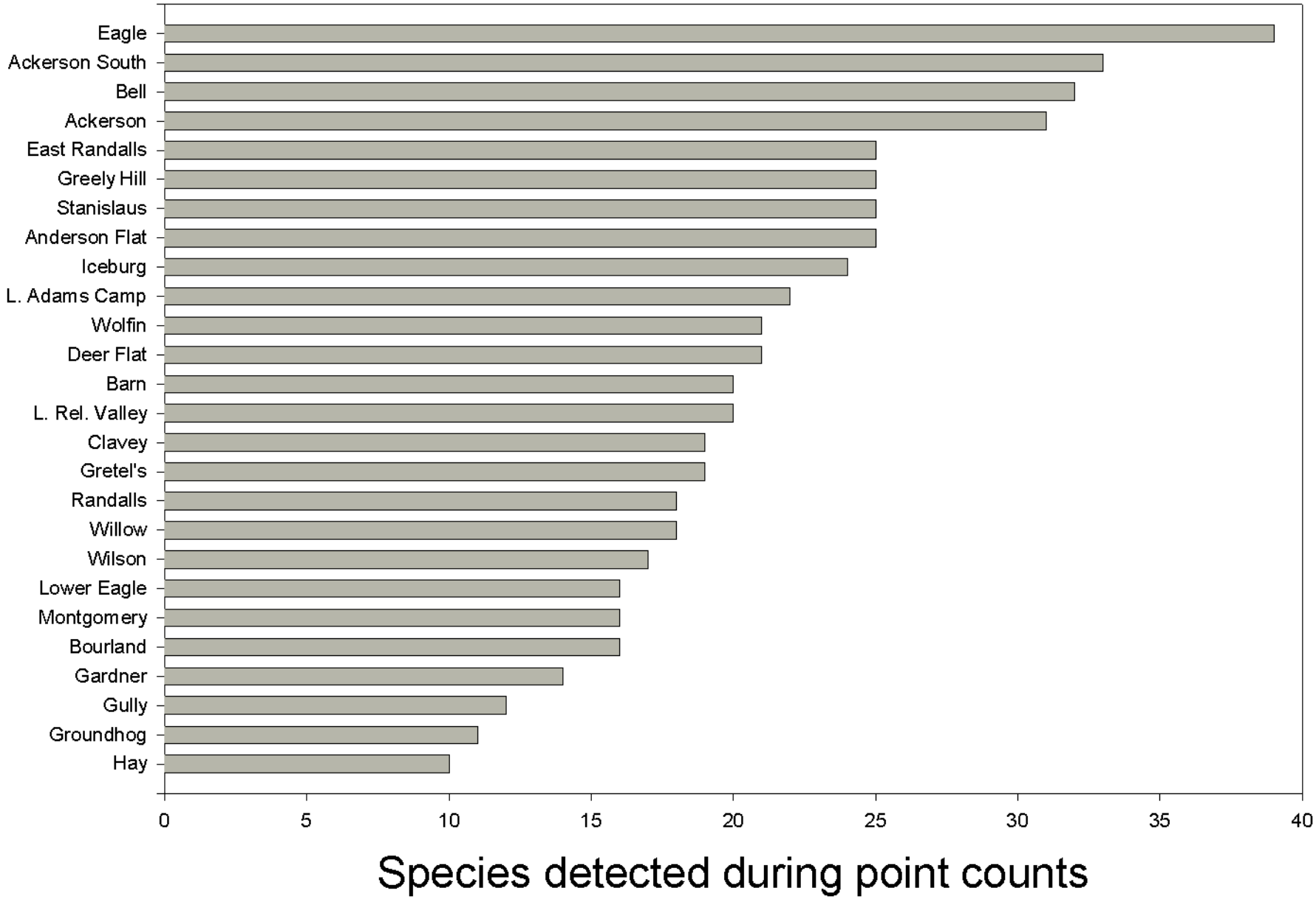


Figure 22. Total number of species detected during point counts at Stanislaus National Forest meaows.

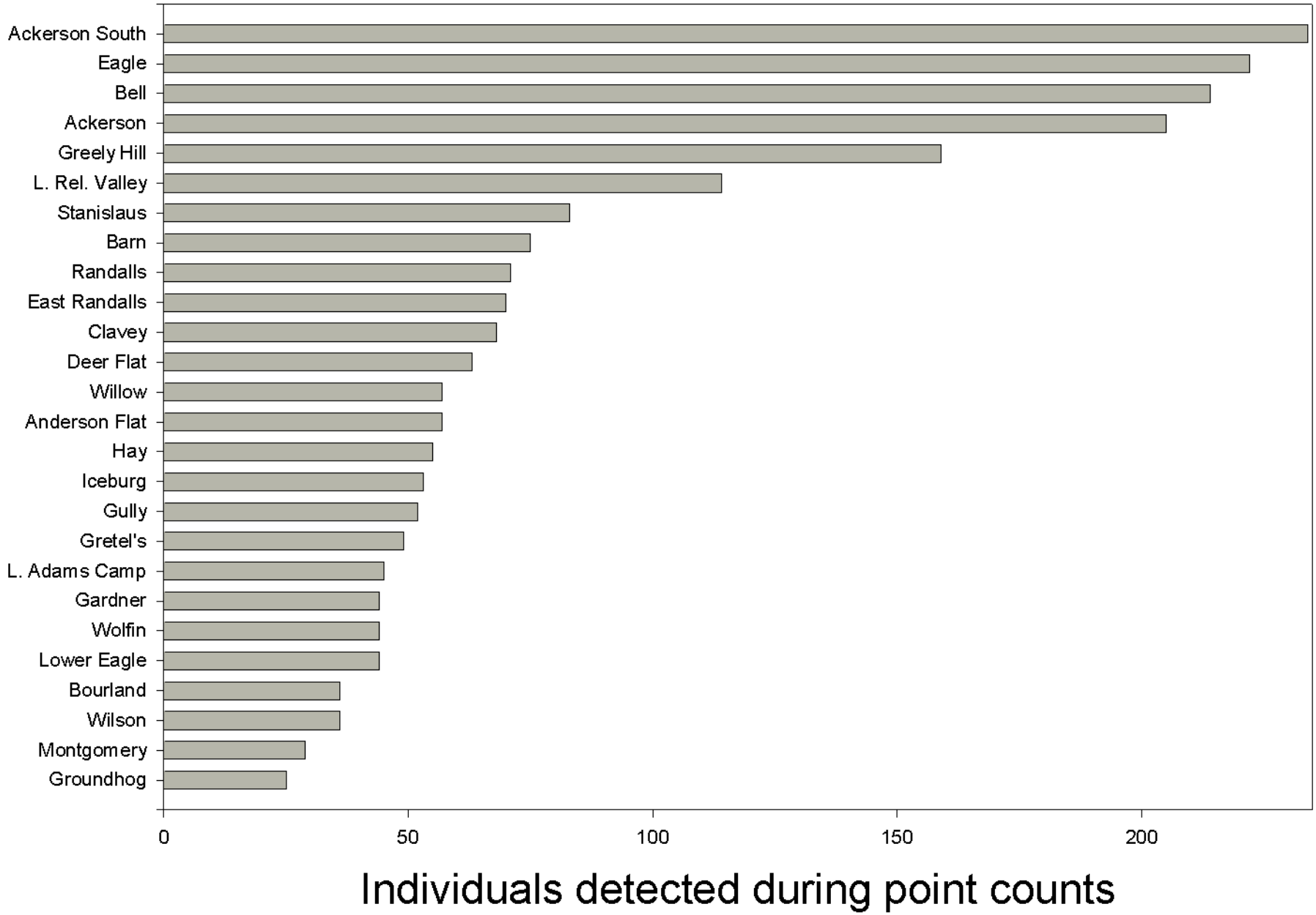


Figure 23. Number of individual birds detected during point counts at Stanislaus National Forest meadows.

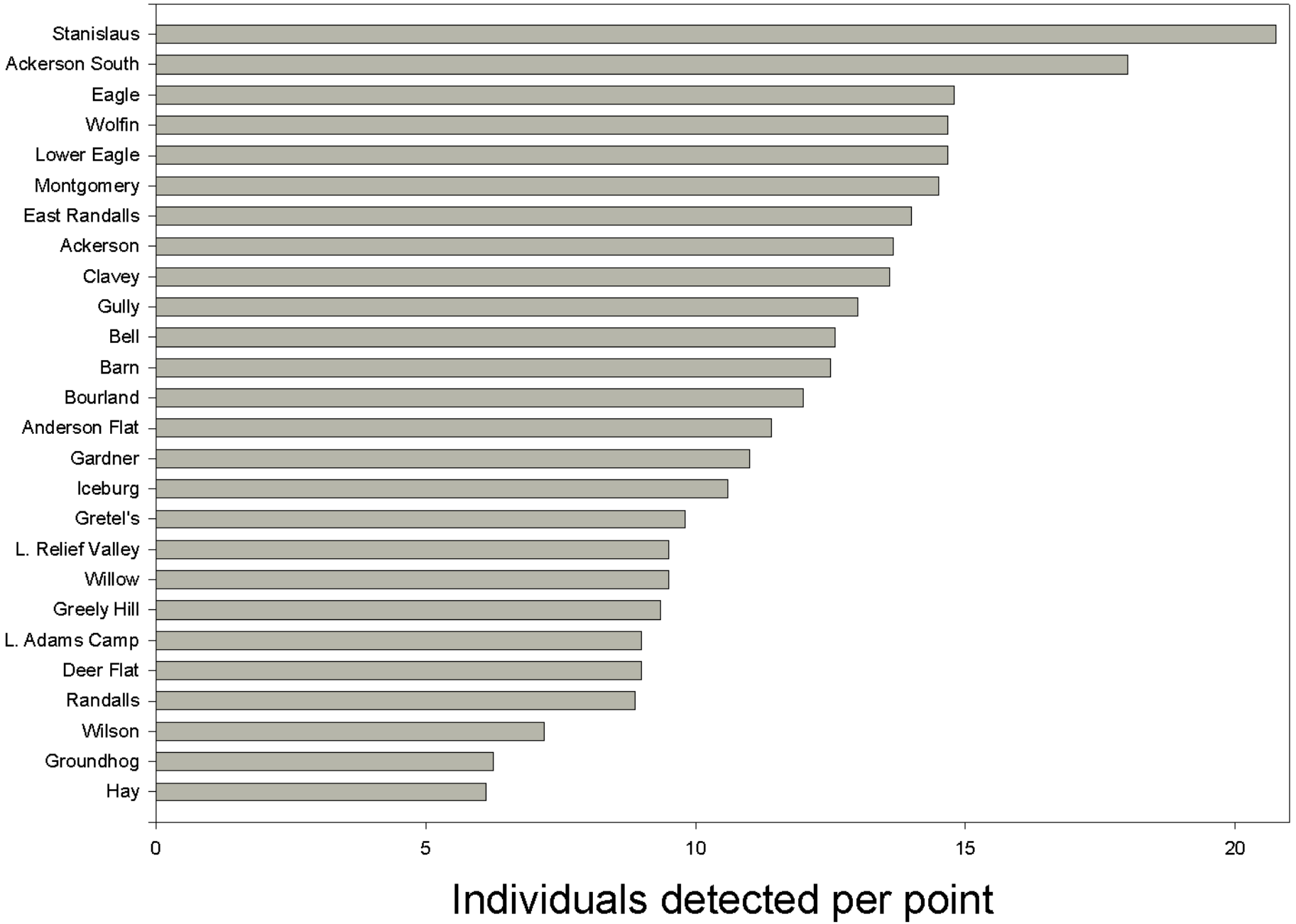


Figure 24. Number of individual birds detected per point at Stanislaus National Forest meadows.

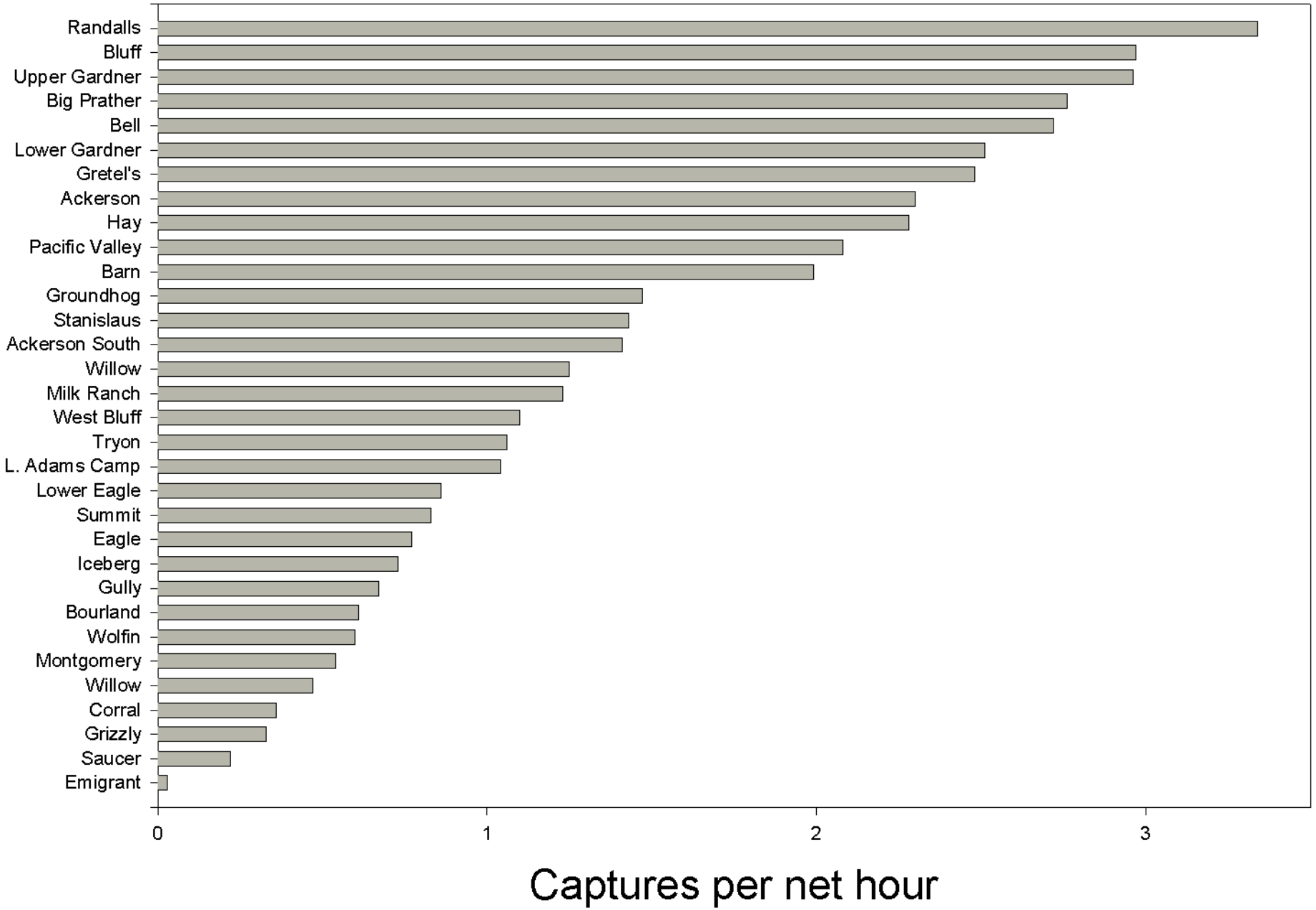


Figure 25. Number of birds captured per net-hour at Stanislaus National Forest meadows.