

## LEPIDOPTERISTS' PERCEPTIONS OF A PROPOSED PERMITTING SYSTEM FOR BUTTERFLY COLLECTING ON PUBLIC LANDS

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**ABSTRACT.** There has been widespread and often rancorous discussion of the need for and desirability of regulation of insect collecting on public lands in the United States. In order to gauge the potential success and utility of a model "No-Fee Permitting System" (NFPS) for butterfly collecting, an anonymous survey was sent to all of the members of the Lepidopterists' Society in northern California, Oregon, and Washington in the spring of 1998. Over 52% of the surveys were returned. While many respondents feel they would use the system honestly, few of the respondents felt other lepidopterists would do so. Correlation analysis between the ranked questions using the Gamma statistic shows that those respondents who collect most often believe the NFPS would not be a useful tool for making management decisions. Likewise, the most frequent collectors are least likely to utilize the NFPS and have a tendency to believe the NFPS would worsen the relationship between collectors and government agencies. Respondents were invited to comment on the questions. The most widely discussed themes included: (1) 36% of the respondents felt the permit would be a nuisance and too difficult to fill out prior to the collection activity; (2) 27% felt the permit was a good idea and was worth trying; (3) 44% expressed a general mistrust of governmental regulation; and (4) 29% felt the permitting strategy is an improper conservation focus. The combination of the quantitative and qualitative responses demonstrates that the NFPS would not be used widely enough for it to be a worthwhile management tool. The relationship between collectors and federal agencies is laden with mutual mistrust, and the installation of a NFPS would only apparently amplify the tension between these two groups of people. We recommend that any future regulation be developed in an atmosphere of consultation and open communication.

**Additional key words:** conservation, land management, The Lepidopterists' Society, U.S. National Forests.

Garry Wills (1999) recently published *A Necessary Evil: A History of American Distrust of Government*, a book that shows that resistance to authority is truly "as American as apple pie." Such resistance is, moreover, closely tied to a characteristic animus against "cosmopolitanism" and "expertise" — a finding which should not surprise readers of Richard Hofstadter's classic *Anti-Intellectualism in American Life* (1963). These forces in the American polity have recently come into play in an unlikely arena — government regulation of butterfly collecting on federal lands.

The publication of Stainton's (1857) *Manual of British Butterflies and Moths* in the mid 19th century may mark the beginning of butterfly collection as a hobby popular with common people as well as the aristocracy. This manual was the first affordable, yet accurate guide to butterflies in Great Britain (Kirby 1903). By the late 1800's, butterfly collecting was common in the United States, and several popular manuals were in circulation (Edwards 1879, Maynard 1891, Scudder 1893, Holland 1898). The Lepidopterists' Society was founded in 1947. According to the 1996 Statement on Collecting Lepidoptera, the Society supports collection as "one of many legitimate activities enabling professional and avocational lepidopterists to further the scientifically sound and progressive study of Lepidoptera and education about Lepidoptera as well as encouraging interaction between professional and avocational lepidopterists" (Executive Committee of the Lepidopterists' Society 1996).

In 1965 Frederick H. Rindge, in his presidential address to the Twelfth Annual Meeting of the Pacific Slope Section of the Lepidopterists' Society, expressed the urgent need for butterfly collections as a tool for future conservation work (Rindge 1965). Today, most lepidopterists agree that loss and modification of habitat have caused reductions in butterfly diversity and abundance. Yet the role of butterfly collecting in this scenario is not well defined. Collecting may be viewed as either a source of distribution and abundance data critical for future work, or as a factor in the loss of diversity due to potential over-collection of sensitive species.

Recently butterfly collection has been a focus of controversy among lepidopterists, academics, federal and state agency employees, and conservationists. This controversy has received a fair amount of publicity in public media. In 1996 two articles describing federal prosecution of lepidopterists involved in illegal collection activities appeared in popular recreation magazines, *Audubon* (Williams 1996) and *Outside* (Alexander 1996). Among lepidopterists, the controversy boiled over in a heated exchange filling much of the April 1996 News of The Lepidopterists' Society, playfully nicknamed "The Collecting Issue." A variety of ideas and attitudes towards butterfly collecting were addressed. Most hailed the activity as an honorable pastime providing much-needed distributional data (Kral 1996, Sun 1996), while Jeffrey Glassberg (1996) highlighted the importance of "non-consumptive"

butterfly enjoyment, such as photography and sight-identification.

The issue of butterfly collection is especially pertinent for federal land managers. For example, in southwestern Oregon — an area known for its high butterfly diversity — butterfly enthusiasts may conduct the majority of their activities on National Forest lands. Currently, the United States Forest Service does not require permits for the non-commercial collection of insects on such lands, but retains the right to regulate collecting administratively (Joslin 1998). On the Rogue River National Forest in Oregon two areas have been designated as “closed” to the collection of butterflies since 1990 [Title 36 Coded Federal Regulation 261.53(a)], including Dutchman’s Peak and Observation Peak. This closure was based on anecdotal evidence of decline of the Small Apollo, *Parnassius phoebus sternitzkyi*. Forest Service biologists observed heavy collecting of *P. p. sternitzkyi* in previous years and had concerns about the extreme environmental conditions of the mountain peaks inhabited by the subspecies (B. Mumblo pers. com.).

There has been no study specifically addressing the effects of collection on population dynamics. In 1964 and 1965 heavy predation pressure was artificially applied to the Jasper Ridge Colony of *Euphydryas editha* without significant decreases in population sizes in 1965 and 1966 (Ehrlich et al. 1975). Yet, in this example of intended overcollection the authors concede that they were unable to remove more than 5 to 25% of the females from the population. Since the population structure and viability of each species is likely to vary, individual examples will not provide blanket answers for butterflies as a whole. Due to the lack of clear scientific guidance, conservationists and land managers alike usually have taken a conservative stance, thereby increasing the amount of regulation of butterfly collection. For example, the National Park Service has limited butterfly collection strictly to research purposes (Code of Federal Regulations, Title 36, Part 2, Section 2.5). Some lepidopterists shared with us their belief that information on species abundance and distribution within state and national parks has declined because amateur butterfly collectors can no longer monitor the changes in these parks. It is thus claimed on the one hand that over-regulation can stimulate the withdrawal of potential data sources, while under-regulation may allow the over-collection of sensitive butterfly species.

In the spring of 1998, on our own initiative but with the approval of biologists from the Rogue River National Forest, we attempted to design a permitting system that would be acceptable to lepidopterists and

useful to forest managers. In an age when conservation is essential, it is crucial for managers to maintain the most up-to-date information on at least the most sensitive species within their domain. An effective permitting system for butterfly collection might assist in this daunting task by providing information on one particularly charismatic group of organisms. But what would such a system be like?

The development of this permitting system would itself be an experiment. Instead of creating it by fiat “from above,” we approached this policy issue in a more inclusive manner. As described below, the proposed permitting system was “floated” with lepidopterists in the Pacific Northwest as a sort of trial balloon to determine its reception and potential utility.

#### MATERIALS AND METHODS

**Creation of the permitting system.** The “No-Fee Permitting System” (henceforth NFPS) was purposefully designed as a “user-friendly” means for butterfly collection within the bounds of forest service land. The procedure for using the NFPS was described in general terms in the belief that excess detail would merely distract from the aims of the system. It would work as follows: Upon arrival, a collector would voluntarily fill out a two-copy form detailing the date, location, the species desired and the quantity to be taken. One copy of the form would automatically serve as a free permit and would be retained by the collector. The second copy would be deposited in a drop box on-site, and provide the agency with information about which locations and species experience the most collection pressure.

**Survey of the members of The Lepidopterists’ Society.** All of the members of The Lepidopterists’ Society in northern California, Oregon, and Washington were surveyed. They were asked whether they would use the NFPS and their opinion of it as a management and conservation tool. Northern California was arbitrarily defined as any location north of Sacramento, California. All 86 members of the society in the defined region as of 1997 were mailed a packet containing a cover letter, survey, and a pre-addressed, stamped envelope in which to return their responses. The cover letter was designed to establish a disinterested position on the issue, detail the procedure for using the NFPS, and assure the respondent of anonymity (Appendix 1). The survey was made up of eight questions and the majority of the answers were rankings from one to five for particular, scaled responses (Appendix 2). The questionnaires were not coded in any way for individual tracking and were separated from their envelopes so that postmarks could not be used to identify respondents. A few respondents elected to in-

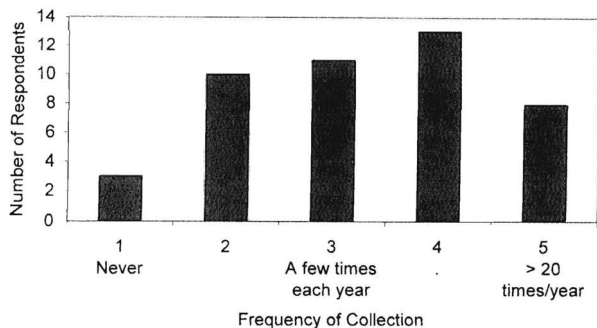


FIG. 1. Distribution of the survey responses to the first question, "How often do you collect butterflies?"

clude signed comments, sometimes quite lengthy, but none is identified in this paper.

**Analysis of the survey response data.** The responses to the quantitative rank questions were graphed in order to detect trends in the replies. Since the responses to the survey questions were ordered categories it was necessary to use nonparametric statistics for the correlation analysis. The Gamma Statistic (Siegel & Castellan 1988) was used to measure correlations between the responses of the different ranked questions. The Gamma statistic is most appropriate for calculating correlations with non-continuous data and, similarly to other correlation statistics, it produces results ranging from -1 to 1. A Gamma statistic close to 1 indicates a positive relationship between the responses of two different survey questions, while Gamma statistics approaching -1 indicate negative relationships between the responses.

All of the comments from the qualitative questions were compiled into individual documents and these responses were read and evaluated separately. The responses to each question were reviewed several times and "themes" that appeared in more than one answer were labeled and tallied. Once this exercise was completed it was evident that there was a significant amount of overlap in the responses to questions 4, 7, and 8. Thus, the responses to the three questions were combined for the most frequent themes and the total number of respondents expressing each particular theme was recorded. Each survey reply was given an identification number after being separated from its envelope to avoid double-counting sentiments expressed twice by the same respondent.

RESULTS

**Quantitative survey questions.** The responses to the survey were collected during the summer of 1998. Overall, 45 surveys were received, yielding a return rate of 52.3%. Responses to question 1 (Fig. 1), "How

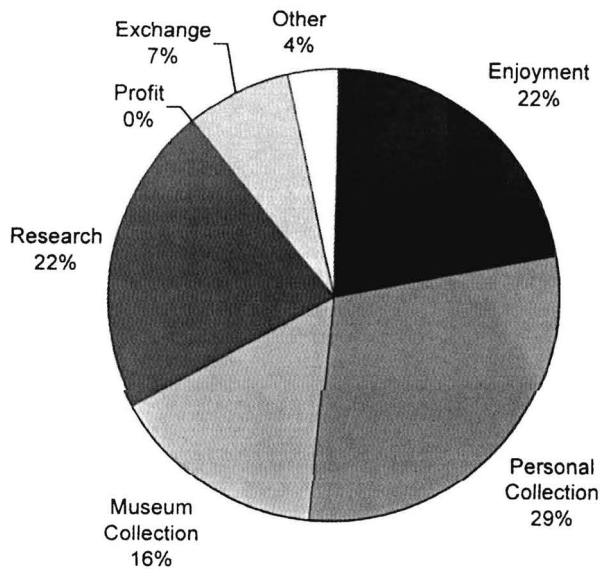


FIG. 2. The relative frequencies of the given responses to the second survey question, "Why do you collect butterflies?"

often do you collect butterflies?" demonstrate the presence of a wide variety of lepidopterists in our population, from those who collect quite frequently to others who do not collect at all. The second question, on the reasons for butterfly collection (Fig. 2), clearly points towards "personal collection" as the most widely cited rationale. "Museum collection," "enjoyment," and "research" all follow closely behind "personal collection" as reasons for butterfly collecting. Not a single respondent claimed to be collecting for "profit," and only a few respondents said they collect for "exchange" purposes.

Question 3 asked respondents, "If you decided to collect butterflies and you went to a location that implemented a voluntary "No-Fee Permitting System" as described in the letter, (a) would you use it; (b) would you fill it out candidly and accurately; (c) do you think other collectors would use it; (d) do you think other collectors would fill it out candidly and accurately?" While many respondents claimed they would use the NFPS "every time" and would do so candidly and accurately "every time," they did not hold the same expectations of compliance for their fellow lepidopterists. The most popular response for questions 3A and 3B is 5, signifying "every time" (Fig. 3). Notably, this majority shifts to 3, signifying "sometimes," for questions 3C and 3D (Fig. 4): in other words, many respondents consider themselves better conservationists or more ethical than lepidopterists in general.

When asked in question 5, "Do you think the NFPS would be a useful tool for making management deci-

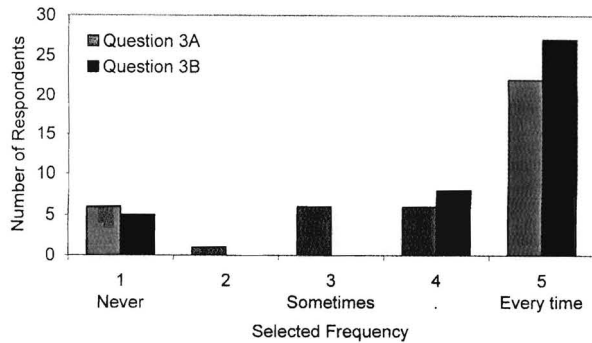


FIG. 3. Distribution of the survey responses to questions 3A and 3B. These questions asked, "If you decided to collect butterflies and you went to a facility or location that implemented a voluntary 'No-Fee Permitting System' as described in the letter, (3A) would you use it?" and (3B) "Would you fill it out CANDIDLY and ACCURATELY?"

sions about butterfly collecting?" the responses were extremely scattered. Almost an equal number of respondents circled "yes" as "no," and the majority of respondents answered "maybe." However, the responses to question 6 were more revealing. Over 20 respondents who answered the question, "How do you think the NFPS would affect relations between collectors and government agencies?" felt it would worsen the relationship (either a 4 or 5), while only ten respondents felt the NFPS would improve it (either a 1 or 2).

While the raw data are interesting to examine, the correlations between responses to particular questions reveal some of the most intriguing patterns in these data (Table 1). It is clear that the respondents who claim they would use the NFPS also express the likelihood of using it candidly and accurately ( $p < 0.0001$ ). Likewise, those who felt other lepidopterists would use the NFPS also tended to think they would use it candidly and accurately ( $p = 0.0005$ ). Since the responses to 3A and 3B are so tightly linked to each other, the additional correlations are only tested using comparisons with 3A with the understanding that a correlation with 3A indicates a similar level of correlation with 3B. This reasoning is also used for correlations with 3C and 3D.

Several interesting trends emerge from the correlation data. While not all of the trends produce results with statistical significance, the correlations mentioned here indicate potentially important relationships between survey responses. These trends include: (1) The respondents who collect butterflies the most frequently tend to be the ones who would not utilize the NFPS ( $G = -0.35$ ,  $p = 0.11$ ) and believe others would not use the permit either ( $G = -0.26$ ,  $p = 0.21$ ). (2) The respondents who collect butterflies the least are the ones who believe most strongly that the NFPS is a

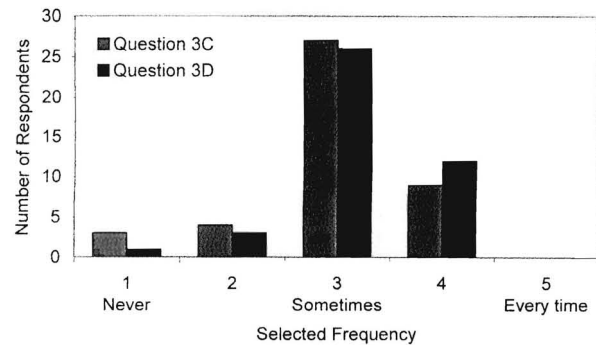


FIG. 4. Distribution of the survey responses to questions 3C and 3D. These questions asked, "If other butterfly collectors went to a facility or location that implemented a voluntary 'No-Fee Permitting System' as described in the letter, (3C) do you think they would use it?" and (3D) "Do you think they would fill it out CANDIDLY and ACCURATELY?"

useful tool for making management decisions about butterfly collecting, while the most frequent collectors tend to hold the opposite opinion ( $G = -0.46$ ,  $p = 0.015$ ). (3) The respondents who claim to be the most likely to use the NFPS and believe others would do the same are also the ones who feel the NFPS may be a useful tool for making management decisions and could potentially improve the relations between butterfly collectors and government agencies (all correlations are significant at  $p = 0.05$ ). (4) The collectors who collect with the highest frequency have a slight tendency to believe that the NFPS would worsen relations between butterfly collectors and government agencies ( $G = 0.26$ ,  $p = 0.18$ ).

Finally (5), there is a tight relationship between the respondents who feel the NFPS is a useful management tool and those who feel it will improve relations between the collectors and the agencies ( $p = 0.0054$ ). This also indicates a tight relationship in the other direction; the respondents who feel the relationship will be worsened also feel the NFPS is not a useful management tool.

**Qualitative survey questions.** Besides the ranked survey responses, there were three questions that solicited comments from the respondents. Question 4 asked the respondent to "Explain your responses to question #3." Question 7 inquired, "What is your opinion of the NFPS?" Lastly, question 8 asked the respondent to write any additional comments they wanted to discuss regarding the NFPS. The writer was invited to attach additional sheets if necessary.

Since the qualitative questions were all fairly general in what they were asking, there was a great deal of overlap in the responses. Several themes continued to emerge in the written response data, therefore it is fitting to discuss the general trends detected in the re-

TABLE 1. Selected correlations between pairs of quantitative survey questions using the Gamma statistic ( $G$ ), which ranges from  $-1.0$  to  $1.0$ . Highly significant correlations are emphasized with the following notations: \*\*\* represents  $p \leq 0.001$ , \*\* represents  $p \leq 0.01$ ; and ° represents  $p \leq 0.05$ .

Pairs of questions tested for correlation		Gamma statistic ( $G$ )	p-value
3A: If you went to a location with the NFPS, would you use it? 1 = never, 5 = every time	3B: Would you fill it out candidly and accurately? 1 = never, 5 = every time	0.83	<0.0001 ***
3C: Do you think other collectors would use the NFPS? 1 = never, 5 = every time	3D: Do you think other collectors would fill it out candidly and accurately? 1 = never, 5 = every time	0.85	0.0005 ***
1: How often do you collect butterflies? 1 = never, 5 = >20 times/yr	3A: If you went to a location with the NFPS, would you use it? 1 = never, 5 = every time	-0.35	0.11
	3C: Do you think other collectors would use the NFPS? 1 = never, 5 = every time	-0.26	0.21
	5: Is the NFPS a useful tool for making management decisions about BC? 1 = No, 5 = Yes	-0.46	0.015 °
	6: How do you think the NFPS will affect relations between BC's and Govt. Agencies? 1 = Strongly Improve, 5 = Strongly Worsen	0.26	0.18
5: Is the NFPS a useful tool for making management decisions about BC? 1 = No, 5 = Yes	3A: If you went to a location with the NFPS, would you use it? 1 = never, 5 = every time	0.49	0.044 °
	3C: Do you think other collectors would use the NFPS? 1 = never, 5 = every time	0.56	0.027 °
	6: How do you think the NFPS will affect relations between BC's and Govt. Agencies? 1 = Strongly Improve, 5 = Strongly Worsen	-0.61	0.0054 **
6: How do you think the NFPS will affect relations between BC's and Govt. Agencies? 1 = Strongly Improve, 5 = Strongly Worsen	3A: If you went to a location with the NFPS, would you use it? 1 = never, 5 = every time	-0.59	0.013 °
	3C: Do you think other collectors would use the NFPS? 1 = never, 5 = every time	-0.58	0.026 °

sponses to all three questions (4, 7, and 8) in order to consolidate the findings of the study.

Thirty-six percent of the respondents expressed the belief that the permit would be a nuisance and that it would be too difficult or impractical to fill out ahead of time. One respondent explains, "As you've described it, most collectors have to indicate what species and how many individuals they intend to take upon arrival . . . MOST collecting does not happen that way — it is rather a treasure hunt — you go out and see what you can find." Another says "quite often people go to a new area, especially on vacation, without prior knowledge of what can be found." Finally, another comment suggests a different approach to permits as a data source: "When I go to collect, the reason is never to pick up a certain number of a certain species, but rather to sample what is flying that day . . . the system you suggest is useless for me unless I get to fill out the species and count info after the fact — say at day end or even better later by mail."

Several replies included suggestions for alternate per-

mit systems. Two respondents expressed their belief that the permit needs "teeth," in other words, some regulations specifically geared towards the enforcement of the system. Four respondents suggested that the permit have a third copy on which the actual species list can be recorded and submitted at a later time.

On the other hand, several respondents (27%) believed the permit was a good idea and it was worth trying to determine if lepidopterists would comply with the new system. One person felt the NFPS "might help gauge the pressure on a fragile population." Although 12 respondents included comments leaning in this direction, these responses tended to be brief and supportive, yet not as emphatic in tone as the negatives.

One of the most consistent trends in the qualitative data was a mistrust of government. Quotes from respondents include:

"I am very nervous about the NFPS being put under the supervision of any state or federal agency," (underline original)

"I will confess, my knee-jerk reaction anytime that it is suggested that government become more heavily involved in scientific endeavors, even if they be hobbyist endeavors such as collecting butterflies, that it is a bad idea."

"I think the government screws up everything it touches."

"Bad idea to involve 'the government' in any more of our lives than absolutely necessary."

These types of sentiments were recorded in 20 of the 45 returned surveys (44%).

Furthermore, many respondents (29%) felt that butterfly collecting is an ineffective conservation focus:

"Collecting of several specimens of a population of insects in the vast majority of cases has absolutely no effect on the population whatsoever."

"It is well known that the decline of species of any kind has been due to two principle (sic) causes — long term climate change and loss of habitat."

"One issue is the immense hypocrisy perceived by lepidopterists when the USFS bans collecting... while permitting hunting, fishing, logging, bug zappers, and the spraying of vast acreages of forests with *Bacillus thuringiensis*, killing millions of leps."

There were several reasons advanced as to why lepidopterists would be unlikely to comply with this system. This opinion was expressed in 18/45 surveys (40%):

"Some persons might feel guilty that they have overcollected and not report all of their catches."

"Anyone pursuing larger numbers of specimens for whatever reason would be least likely to truthfully report their activities."

"There are some people in it for money, these people seemingly have no thought about habitat, populations, future of a species or subspecies, just dollars."

Clearly, many lepidopterists feel that the collectors who take the highest numbers would be the least likely to use the NFPS, a trend that aligns with the correlation results from the quantitative data.

Several people worried that the data collected from the NFPS would not be of a high quality because so many different people with varying levels of skill in species identification would submit it. In addition, there seems to be a fear that agency personnel would interpret the data inappropriately. Concerns over data quality and interpretation were cited in six returned

surveys (13%). Some of these respondents felt that a biologist working for the Forest Service may have little or no understanding of what factors have the most influence on butterfly populations. For instance, declines due to inclement weather may be wrongly associated with a modest level of collection, especially by agency personnel unfamiliar with insect (as opposed to tree or vertebrate) population dynamics.

Six respondents (13%) expressed the fear that the NFPS would not remain "No-Fee" after a few years. Three lepidopterists pointed out that they believe there are too few collectors to justify an effort. One respondent explained, "there are nowhere near as many collectors as the public is led to believe. In nearly 70 years of collecting, I rarely see another collector." Finally, six respondents (13%) expressed the belief that lepidopterists have an innate conservation ethic or highlighted the importance of butterfly collection for conservation purposes. They explain that amateur butterfly collectors are often the main group of lepidopterists that provide accurate distribution data for species occurrences on an annual basis. Further, many of the dot-distribution maps widely used in Oregon and Washington were based on specimens from private collections (Dornfeld 1980, Hinchcliff 1996). With only a few academic and professional research lepidopterists in the region, it is imperative to augment their data with the work of amateur collectors. Many point out that collectors out on exploratory jaunts are often the ones who discover new species and populations in an area. Regulation of this activity may have negative impacts on the willingness of these people to share their discoveries.

## DISCUSSION

**Analysis of the potential success and utility of the "No-Fee Permitting System."** Based upon the responses to the first few questions on the survey, it is clear that this group of people was an appropriate population to be surveyed. Most of the 45 respondents collect several times per year with only three who claimed to never collect at all (Fig. 1). Collectors usually go out into the field with the intention of taking specimens, with the most widely cited rationale being "personal collection" (Fig. 2). While no one admitted to collecting for profit, 8/45 of the respondents (18%) collect with the intention of exchanging specimens. Collection for the purpose of "exchange" may imply the taking of more rarer or harder-to-catch species in order to increase their exchange value.

While approximately half of the respondents said they would utilize the NFPS every time they went to a participating location, an even greater proportion of

respondents predicted a lower level of participation for other lepidopterists. Sixty percent of the respondents felt that other collectors would only use the NFPS “sometimes” at participating locations. Only 6/45 lepidopterists (13%) say they would “never” use the proposed system. Since some of these are the most frequent collectors, as indicated by the slight correlation between question 1 and question 3A (Table 1), this is a significantly negative response.

From the response data it is apparent that the reaction to the NFPS is not positive enough to justify initiating this sort of conservation strategy: it would, in fact, be counterproductive. Furthermore, from the comments and quantitative data it is apparent that the relationship between lepidopterists and government agencies is seriously in need of repair. While both groups would benefit from improved communication and cooperation, neither thoroughly understands the predicaments and concerns of the other. Yet, without cooperation, the future of butterfly conservation is needlessly compromised.

The approach of this survey was to involve the persons most affected by the model system in the decision-making process. We feel this is one of the first steps to improving the relationship between the two groups. It is critical that the U.S. Forest Service listen to the concerns of the respondents and make its policy decisions with these suggestions in mind: that is, only extremely compelling reasons would justify failing to heed the advice of the concerned public. In the *Parnassius phoebus sternitzkyi* case there are no such compelling reasons.

It is clear from the ranked data that the lepidopterists who collect most frequently have a tendency to be the ones who do not consider the NFPS to be a useful tool for making management decisions; they do not think it will improve the relations between collectors and government agencies, and they are the least likely to comply with the system (Table 1). When these results are combined with the comments regarding the success and utility of the NFPS, it becomes clear that the system will be ignored and disliked by many, perhaps most, frequent butterfly collectors. If implemented with only weak support from lepidopterists the NFPS would not only incite resentment, it would also be nearly useless as a source of reliable data, making it an essentially useless endeavor. In an era where the sentiment towards government agencies is laden with mistrust, agencies such as the US Forest Service should strive to open channels of communication, rather than close them by taking what would be perceived as arbitrary bureaucratic action.

#### **Suggestions for policy improvement and fu-**

**ture use.** The NFPS was intended to improve the amount of data available to land managers. Even if the NFPS as we have described it would not be acceptable to the collecting public, perhaps it would be helpful for individual forests to set up voluntary data submission programs — carefully avoiding the word “permit” or other threatening buzzwords. Then lepidopterists might feel they are doing their part for conservation without the sense of unjustified regulation. This could be a primary step toward improving the relationship between collectors and government agencies. If legitimate, well-documented conservation concerns ultimately dictate some form of permitting system, it would be much more likely to succeed if lepidopterists understand its rationale and support its goals.

#### ACKNOWLEDGMENTS

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#### APPENDIX 1 – Letter to Lepidopterists.

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June 17, 1998

Dear Member of The Lepidopterists' Society,

I am a graduate student at the University of California, Davis, and I am interested in the conservation biology of butterflies. Regulation of collecting has become a very controversial subject in part because of poor communication about the justification and goals of the regulation. As part of my Master's thesis research I would like to determine how a new butterfly collection monitoring program would be received by amateur, professional, and academic lepidopterists. Since the proposed system has not been used before, the results of the enclosed survey will be of key importance when determining whether such a program would be successful and worthwhile. Please read on!

As you may know, Apollo butterflies (genus *Parnassius*) are often under heavy collection pressure. Intense butterfly collecting in a particular region has been claimed to contribute to irreversible species decline. Both the collection and sale of Apollo butterfly species have been forbidden in Europe and similar protective actions could occur in the United States. Lepidopterists are commonly aware of "source" locations for particular species. The Siskiyou Mountains are the only habitat for a showy Apollo subspecies, *Parnassius phoebus sternitzkyi*. Most of its habitats are on public lands.

At this time there are no hard data on how much collecting of *Parnassius phoebus sternitzkyi* is occurring, or whether it is harming the populations. Because the subspecies has such a small geographic range and a low reproductive rate, it may be proposed for protection of some kind. Such proposals should not be made on pure instinct, however—protection might be urgently needed, but it also might be totally unnecessary!

One way to monitor the amount of collecting on public lands would be the installation of a "No-Fee Permitting System." It would work like this: (1) Upon arrival, a collector would voluntarily fill out a two-copy form detailing the date, location, the species desired and the quantity to be taken; (2) One copy of the form would automatically serve as a free permit. The second copy, which would be deposited in a drop box on-site, would provide the agency with information about which locations and species experience the most collection pressure.

Please take a few minutes and complete the enclosed survey regarding the "No-Fee Permitting System." This survey is being sent to Lepidopterists' Society members in Oregon, Washington, and Northern California. The completed survey should be returned in the stamped envelope provided. I would like to thank you for your honest participation in this important study. Let me assure you that there are no identifying marks on the survey and that all replies will be kept absolutely anonymous. The aggregate response may be published and/or provided to local, state, and federal agencies, and non-governmental conservation organizations. It may shape the future of *Parnassius phoebus sternitzkyi*—and of collecting on public lands. Thanks again!

Sincerely,  
Kristine C. Mazzei



APPENDIX 2 – Survey on proposed “No-Fee Collection Permit System.”

*Return to (stamped envelope has been provided):*

Kristine C. Mazzei  
 Evolution and Ecology  
 University of California, Davis  
 Davis, CA 95616  
 email: kcmazzei@ucdavis.edu

**1998 Survey on Proposed “No-Fee Collection Permit System”**

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**Please honestly respond to the following questions and feel free to explain any answers in the “ADDITIONAL COMMENTS” section at the end of the survey. Thank you for your participation. Please omit any information that might identify you or your location.**

(1) How often do you collect butterflies (circle the appropriate number)?

<b>Never</b>		<b>A few times each year</b>		<b>More than 20 times per year</b>
1	2	3	4	5

(2) If you answered between 2 and 5 on question #1, please circle all of the reasons why you collect butterflies:

<b>Enjoyment</b>	<b>Personal Collection</b>	<b>Museum Collection</b>	<b>Research</b>	<b>Profit</b>
<b>Exchange</b>	<b>Other Reason:</b>			

(3) If you decided to collect butterflies and you went to a facility or location that implemented a voluntary “No-Fee Permitting System” as described in the letter,

(A) would you use it?

<b>Never</b>		<b>Sometimes</b>		<b>Every Time</b>
1	2	3	4	5

(B) would you fill it out CANDIDLY and ACCURATELY?

<b>Never</b>		<b>Sometimes</b>		<b>Every Time</b>
1	2	3	4	5

(continued on back)

(C) Do you think other collectors would use it?

<b>Never</b>		<b>Sometimes</b>		<b>Every Time</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

(D) Do you think other collectors would fill it out CANDIDLY and ACCURATELY?

<b>Never</b>		<b>Sometimes</b>		<b>Every Time</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

(4) Explain your responses to Question #3:

(5) Do you think the “No-Fee Permitting System” would be a useful tool for making management decisions about butterfly collecting?

<b>No</b>		<b>Maybe</b>		<b>Yes</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

(6) How do you think the “No-Fee Permitting System” would affect relations between collectors and government agencies?

<b>Strongly Improve</b>		<b>No Effect</b>		<b>Strongly Worsen</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

(7) What is your opinion of the “No-Fee Permitting System?”

(8) ADDITIONAL COMMENTS (please write as much as you like, use additional sheets if necessary—but remember not to identify yourself).

*Thank You!*