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Low and Variable Visitor Compliance Rates at Voluntary Trail Registers

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ABSTRACT

Only 20 percent of the visitors to the Bob Marshall Wilderness, Mont., during 1981 complied at voluntary trail registers. Rates varied from 0 for day-use horseback riders to 47 percent for backpackers. Summer rates were seven times as high as fall rates. Unless rates are higher, trail registers do not provide a good base for use estimates. Methods of raising registration rates are discussed.

KEYWORDS: trail registers, use estimation, registration rates, wilderness, wilderness use, Montana

Unmanned, voluntary trail registers are used by managers of many wildland parks, recreation areas, and wildernesses in the United States and Canada. Their main purpose is to obtain information about the recreational use of the trails. Use estimates can be used for budgeting, for assessing the potential for impact and effects on solitude, for setting work schedules, for providing visitors accurate information about use patterns, and, in some cases, for limiting use. But, it is common knowledge that a significant proportion of visitors do not register. Therefore, adjustments to the raw trail register data are necessary to reflect actual use.

To estimate use, managers have to know what proportion of visitors register with enough accuracy to meet the management objectives served by the use estimates (Echelberger and others 1981). Usually managers also want to estimate numbers of different types of visitors—hikers and horse-users, day-users and campers, etc. Because different types of visitors comply with trail registers quite differently, managers must estimate compliance rates for each type.

There have been a number of studies of trail register compliance in different areas over the last 20 years (Lucas and Kovalicky 1981). Some studies, the early ones especially, showed fairly high registration rates, usually 70 to 90 percent (table 1).

If these high compliance rates were typical, trail register data would provide a good base for use estimates. Adjustment factors to account for noncompliance would involve only modest expansion of trail register data. Two later studies, however, found much lower registration rates (table 1). Visitors to a portion of the Selway-Bitterroot Wilderness in Montana in 1974 had only a 28 percent registration rate (Lucas 1975). The Idaho Primitive Area (now the River of No Return Wilderness) reported even lower rates, only 18 percent.[2] These low rates were an unpleasant surprise. Low rates meant expansion factors had to be large, and had to be applied to a small, shaky base. Acceptably accurate use estimates would be much harder to produce than with higher compliance.

Caution by managers was clearly called for with such divergent results. Uncertainty was high—which results were typical, which were exceptions? Was registration inherently highly variable from place to place, or were rates dropping over time? Additional information about trail register compliance rates were needed. Data now available for 1981 use of the Bob Marshall Wilderness in Montana show very low registration rates, as well as wide variations among trailheads and different types of visitors.

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[2]Personal communication, Earl Dodds, District Ranger, Big Creek Ranger District, Payette National Forest, McCall, Idaho. The estimate is based on extensive, careful field observation.

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Table 1.—Reported voluntary trail registration rates, from 11 studies over 20 years

Areas	State	Year	Registration rate
			Percent
1. Three Sisters Wilderness and Mountain Lakes Wilderness	Oregon	1961-62	74
2. Mission Mountains Primitive Area	Montana	1968	65
3. San Gorgonio Wilderness	California	1969	77
4. Rawah Wilderness	Colorado	1970	89
5. Selway-Bitterroot Wilderness	Montana	1974	28
6. Idaho Primitive Area	Idaho	1974	18
7. Sawtooth Wilderness	Idaho	1975	78
8. Waterton Lakes National Park	Alberta	1976	78
9. Spanish Peaks Primitive Area	Montana	1977	50
10. McCormick Forest	Michigan	1978-79	67
11. Bob Marshall Wilderness	Montana	1981	20

(Sources: Lucas and Kovalicky 1981, table 7; James and Schreuder 1971; Leatherberry and Lime 1981.)

STUDY AREA

The Bob Marshall Wilderness is one of the country's best known wildernesses. It is large, almost a million acres, with high mountains and valleys with major rivers. It has over 20 trailheads and an extensive network of over 1,000 miles of trails. Most visitors travel by horse, and many come in the fall to hunt elk. Lengths of stay tend to be long, averaging about 5 days (Lucas 1980). In 1981, 154,000 recreation visitor-days of use were reported.

Almost all trails have trail registers, sometimes at or near the trailhead parking area, and in other cases at the Wilderness boundary, up the trail from the trailhead.

STUDY METHODS

Seven sample trailheads were chosen for sampling by personnel of the National Forests that manage the Bob Marshall (table 2). Because the primary purpose was to estimate recreational use for management planning, the trailheads believed to be most used were selected for monitoring.

Automatic electronic trail traffic counters which triggered modified movie cameras were installed on each trail. The film provided a nearly complete record of the amount and type of use from late June through mid-November. The use-monitoring equipment is described in Lucas and Kovalicky (1981). Parties were classifed by method of travel (hiking or using horses), party size, and as day-users or overnight campers, based on presence or absence of backpacks or pack horses. Visitor groups who registered were classified in the same way as on film.

Data were basically a complete census, so statistical significance is not relevant.

RESULTS

Overall, only 20 percent of the parties registered (table 2). This is one of the lowest rates reported to date, even lower than the 28 percent figure for the Selway-Bitterroot, and less than one-third the 65 and 75 percent rates reported elsewhere. Only the Idaho Primitive Area had a lower rate.

Registration rates varied widely among trailheads, from a high of 36 percent to a low of 7 percent. This variation is much greater than in previous studies.

Different types of visitors also varied in registration compliance. In general, the pattern of variation was similar to that found elsewhere, but the magnitude of variation was different. Campers complied better than day-users, but the difference (20 percent versus 18 percent) was much smaller than in other studies (table 2).

On the other hand, hikers were over 5 times as likely as horse-users to register (39 percent against 7 percent) (table 2), which is a more extreme difference than reported before. No trailhead had a registration rate for horsemen above 13 percent, while one trailhead had an 86 percent rate for hikers.

Fall visitors, mostly hunters, lowered registration rates. Only 5 percent of fall visitors registered, compared to 35 percent of summer visitors (table 2). Summer hiking campers (backpackers) had a 65 percent compliance rate, not much lower than in the earlier studies, but only 11 percent of fall backpackers registered. Only 12 percent of summer horseback campers registered, and in fall this dropped to 3 percent.

Table 2.—Number of groups observed (N) and percent registering at each of seven Bob Marshall Wilderness trailheads by length of stay, method of travel, and season, 1981

Trailhead							
Meadow Creek N = 370	**Schafer Meadows** N = 146	**Holland Lake** N = 440	**Pyramid Pass** N = 162	**Monture Creek** N = 347	**North Fork Blackfoot** N = 336	**Bench-mark** N = 420	**Study area total** N = 2,221
DAY-USERS							
3	5	68	26	2	13	—*	18
OVERNIGHTERS (CAMPERS)							
11	8	30	23	9	23	25	20
HIKERS							
17	19	86	41	14	32	38*	39
HORSE-USERS							
4	2	7	5	4	13	13*	7
SUMMER (late June through September 7)							
14	15	53	47	13	27	63*	35
FALL (September 8 through mid-November)							
1	0	10	6	3	12	3*	5
TOTAL (all types of use)							
9	7	36	24	7	21	25*	20

*Day-users at Benchmark are excluded because the trail register was about 4 miles beyond where use was observed. Few day-users traveled that far; therefore, they had no opportunity to register.

Method of travel and length of stay, combined, seem to affect compliance differently than each factor alone (table 3). Thus, day-use hikers had a 24 percent compliance rate[3] while camping hikers had a 47 percent rate. Day-use horseback riders had a zero rate; not **one** of 101 groups at 7 trailheads registered. In contrast, 7 percent of the camping horseback riders registered. Hikers camping with packstock—in a sense a hybrid group—had a 33 percent rate. Variation among trailheads is great.

REASONS FOR SUCH LOW RATES

One major factor contributing to the low registration rates is the mix of different types of use in the Bob Marshall. Horsemen and hunters have low rates everywhere, and they are responsible for a much larger proportion of total use in the Bob Marshall than in the other study areas. Horse-users accounted for 60 percent of the observed groups and 65 percent of the visitors (because groups of horse-users were larger than hiker groups, on the average). Half of the use came during hunting season and almost all of these visitors were hunting.

Furthermore, many of the horse-users, especially during the hunting season, are with professional guides and outfitters. Outfitters must file reports on trips with the Forest Service, and therefore almost none of them register. In 1970, 35 percent of Bob Marshall visitors used outfitters, all traveling by horse (54 percent of all horse-users were with outfitters). If the proportion of visitors with outfitters was about the same in 1981 as in 1970, perhaps private parties with horses might have a registration rate as high as 15 percent—still low.

If the studies of trail registration are compared, it appears there might be an irregular decline in registration rates over time (table 1). However, this is deceptive. All of the areas with rates below 60 percent have substantial use by horsemen and hunters; among

[3]The day-use figure for Holland Lake probably overstates compliance, because the camera/counter system was located more than 2 miles beyond the trail registers at the two trailheads that combine to serve the trail. Thus, day-users making short hikes, who had a low compliance rate, did not go far enough to be observed. If the camera had been closer, the number of parties observed would have been higher while registration data would have been unchanged, resulting in a lower compliance rate.

Table 3.—Percentage of groups registering at each trailhead, by type of use, 1981

Type of user	Trailhead							Study area total
	Meadow Creek	Schafer Meadows	Holland Lake	Pyramid Pass	Monture Creek	North Fork Blackfoot	Bench-mark	
				DAY-USERS				
Hikers	4	14	90	31	3	13	—*	24
Horseback	0	0	0	0	0	0	—*	0
				OVERNIGHTERS (CAMPERS)				
Hikers (backpackers)	24	25	84	56	43	50	38	47
Hikers with stock	0	100	57	20	13	71	25	33
Horseback	5	2	6	5	4	11	12	7

*Day-users excluded at Benchmark because trail register was located 4 miles beyond where use was observed.

the areas with higher rates only the Sawtooth Wilderness has appreciable use of this type. The best test of the hypothesis that compliance rates are declining would be another study of an area reported earlier to have high compliance.

Some past studies (Lucas and Kovalicky 1981) have shown higher compliance rates at stations located some distance up the trail rather than next to the parking area. This would favor **higher** rates in the Bob Marshall than in the other areas because more of its registers are located up the trail. In fact, this effect is not apparent in the Bob Marshall, and, in any case, it obviously cannot explain the **low** rates.

Trail register maintenance could contribute to poor compliance. Trail registers were serviced in the normal fashion by Ranger Districts, and I did not monitor their condition. At least two apparently ran out of cards for a few days, because some people registered on scraps of paper instead of the official cards. The importance of this factor cannot be evaluated with available information.

MANAGEMENT IMPLICATIONS

Unless trail register compliance rates are higher than reported in this paper and for the Selway-Bitterroot Wilderness and the Idaho Primitive Area, trail registers cannot provide a good base for estimating recreational use, except for backpackers. Even small fluctuations in such low rates, or errors in estimates of the rates, could easily produce use figures with errors of 100 percent or more. For example, if compliance is estimated to be 5 percent, an expansion factor of 20 is needed. If the true compliance rate was 10 percent, however, the use estimate would be twice as large as it should be.

Small errors in estimates of compliance could also produce major distortion of estimates of the composition of use and its distribution. Both of the distortions could impair management decisions.

There are several actions managers might take. First, they could try to raise registration rates. Such efforts could include better maintenance of trail registers, changes in design (brighter colors, more persuasive messages requesting registration, hitchrails for horses, better location) and education campaigns, especially with horse-users and hunters, to encourage more compliance. These groups do themselves a disservice by registering one-fifth to one-seventh as often as backpackers. Their resulting under-representation in registration records invites less consideration by managers than their true numbers would justify.

Second, if trail register information is to be used to estimate use, compliance must be checked. It should be checked at all major trailheads, because it seems to vary so much, and should be related to type of use.

Third, alternative approaches to measuring use may be better than trail registers. One alternative in some situations might be the mandatory self-issued permit, which appears to produce higher compliance than voluntary trail registers, especially for those types of visitors with the lowest registration rates (Lucas and Kovalicky 1981). Automatic trail traffic counters provide another use measurement system. If linked with cameras, they provide information about the type of use, as well.

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