

The Finnish “Social Wilderness”

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Abstract—The cultural roots and images of the Finnish wilderness lie in its use as a source of livelihood practiced in southern and central Finland during the Middle Ages. There are statutory wilderness areas in Finland, but Finnish people consider many other areas as wilderness. It is important for management of the areas, statutory wilderness areas and the other wilderness-like areas to determine what are the features that make an area wilderness, how these areas are used and appreciated by Finnish people. Questionnaires and landscape rankings were used to determine that. Old virgin forests and open bogs are the most important features of Finnish wilderness as revealed by the mental images of Finnish people. In addition, wilderness areas have to be vast, roadless, remote, peaceful, silent and at least near their natural condition. Ponds, streams, wooden trails across bogs and old cabins for common use are consistent with the idea of Finnish wilderness. Finnish people appreciate and use our wilderness areas mostly for picking berries or mushrooms, hunting, fishing and hiking. The experience of peace and silence is the most important motive to visit wilderness.

Finnish hunters and fishermen have used the Finnish wilderness areas to make a great proportion of their living, but they may not have noticed all the wilderness values that we appreciate today (Keisteri 1990; Linkola 1985). Appreciation for Finnish wilderness landscape began to emerge at the end of the 19th century with the national romanticism movement.

There has been national parks and other nature conservation areas in Finland for almost hundred years, but the Finnish word “erämaa” (wilderness) has been used in the nature conservation discussion only for a few decades (for example Sisäasiainministeriö 1982; Virkistysaluekomitean mietintö 1973). Demand for wilderness conservation strengthened considerably about ten years ago as nature activists demonstrated to support protection (Lehtinen 1991). After that, a Wilderness Committee was formed by the Finnish government, and the Committee published its report in 1988 (Erämaakomitean mietintö 1988). After that, 12 wilderness areas have been designated by the Wilderness Act in 1991 (Erämaalaki 1991).

These statutory wilderness areas, as well as most Finnish national parks and other nature conservation areas, are situated in the northernmost Finland (Lapland) where wood processing is the most important industry for the local economy, but tourism takes the second place. These areas have a great influence on tourism income (Kauhanen 1988; Veijola 1992). Wilderness is not found in Finland only in the

statutory wilderness areas or in the other conservation areas. Many people may find their wilderness experience outside these areas, in commercial forests that are simultaneously used for timber production and outdoor activities. The joined production model in land use (Saastamoinen 1982) is typical in Finland. Traditional Finnish wilderness has always been “a storehouse of the backyard” (Hallikainen 1994). It is obvious that this cultural background can still be noticed in the Finnish social wilderness concept (the concept of social wilderness, see Hendee and others 1990; Nash 1982).

The purpose of this study is to define 1) the environmental characteristics that are consistent with the Finnish mental images of wilderness; 2) what are the forestry activities (if any) appropriate in areas considered important for wilderness experience; 3) how do Finnish people use areas, considered as wilderness, for their recreation; 4) do Finnish people appreciate Finnish wilderness areas and if they do, then why? These questions have not been studied before in Finland. The knowledge of these issues is important for natural resources management in certain statutory wilderness areas and other areas where it is important to retain wilderness character.

The Origin of the Finnish Wilderness Concept

The cultural roots of the Finnish wilderness concept lie in the source of livelihood practiced in southern and central Finland during the Middle Ages, when hunting and fishing as well as gathering berries or mushrooms were important for survival. The Finnish word ‘Erämaa’ (translated wilderness in English) has meant forest-covered hunting and fishing areas located well away from village borders and neighboring agricultural lands (Voionmaa 1947). The word “erä” has many meanings. It has meant, for example, a part or a part separated from something else. This could mean that the hunting areas or prey like game or fish were divided among hunters. Furthermore, the word could mean the areas that have been separated from the cultivated areas. Perhaps the development of agriculture, the new cultural stage, made it necessary to define the concept of “erämaa” to describe the backcountry areas that had been left outside the cultivated areas.

Materials and Methods of an Empirical Study

To help define the Finnish “social wilderness,” a mail survey was sent to 2000 randomly selected Finnish people of eighteen years or older in 1990. Source of the sample was the Population Register Centre. However, the sample was a disproportionate random sample because the country was first divided into four districts to ensure the comparability of

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the districts (this was taken into account before the generalization of the results to the whole population). About 44% returned the questionnaire. A sample of the people (30 persons, selected randomly) who did not return the questionnaire was interviewed by telephone to find out if their wilderness attitudes and images were different from those of the respondents.

Questions dealt with people's mental images about wilderness. Some of the questions were based on the rankings using a five-point Likert scale of objects like different forest stands or facilities built for outdoor recreation. In the questionnaire, the forest stands and forest areas, as well as the facilities were described using deliberately chosen words (as an example, "Dense spruce forest, old and big trees, dead and fallen trees"). Thus, the evaluations were based on the *mental images* stimulated by the descriptions. Furthermore, the respondents were asked for their wilderness usage and their attitudes toward the areas. The mental images were also measured using a definitional perception question ("What mental images do you connect with wilderness?" (see Heberlein 1982; Hummel 1982). In addition, the respondents were asked for their demographics to define possible differences between the groups of the respondents. The postal questionnaire will be called Data Set 1 in the following.

Another data set (called Data Set 2) consisted of 359 Finnish people met in fifteen organized slide shows. Groups and selection criteria of the people were the following: 1) groups of students in certain colleges were asked to participate by their teacher (three groups), 2) some "key people" working in certain organizations were asked to collect a group of volunteers among their clients (five groups), 3) visitors in certain holiday centers were asked to participate in the slide shows (seven groups). The requests were distributed via announcements, and by asking encountered people to participate. Thus, the researcher could not know beforehand who is going to take part in the slide shows, but the time and the place of a show was decided beforehand by the researcher. The slide shows were organized in different regions of Finland. The economic resources and willingness of those who organized the slide shows influenced where and when the shows were organized. The sampling like this made it impossible to generalize the results to the Finnish population, and that is why one should be very careful in interpretation of the results. The demographics of these participants were compared with the demographics in the Finnish population to define the biases, and the sample were noticed to be somewhat biased (for more details, see Hallikainen 1998).

In the slide shows, 54 forest stands was shown to the participants. The participants had to evaluate and rank three scenic characteristics of the forest landscapes: scenic beauty, suitability for outdoor recreation and wilderness character, using the ranking scale from 0 to 10 (0 means not at all, 10 means the best possible). This part of the study was focused on forest landscapes, because forests are the most dominating landscape in Finnish nature and forestry activities have changed our forest landscapes dramatically. Furthermore, the biological characteristics of the forests were measured (for example, diameter and height of the trees, volume of the stock and so on) in order to determine the interdependencies between the biological characteristics and the scenic evaluations. The participants were also asked

to fill a questionnaire similar to the questionnaire in Data Set 1 to determine their mental images about wilderness, wilderness use and wilderness attitudes as well as their demographics in order to 1) determine the biases in the sampling, 2) compare the landscape rankings between different demographic, wilderness use and attitudinal groups.

The commonly used statistical methods, such as frequency analysis, cross-tabulation, chi-square test, uncertainty coefficient, multi dimensional scaling (MDS), hierarchical cluster analysis (using Ward's methods), Varimax-rotated principal component analysis (PCA) and logistic regression analysis have been used in the computations of the results. Spearman's rank order correlation matrix or polychoric correlation matrix (Jöreskog & Sörbom 1988) were used as source data for MDS and PCA. Kruskal's least squares monotonic transformation and the Euclidean distance model were used in MDS computations.

The Results

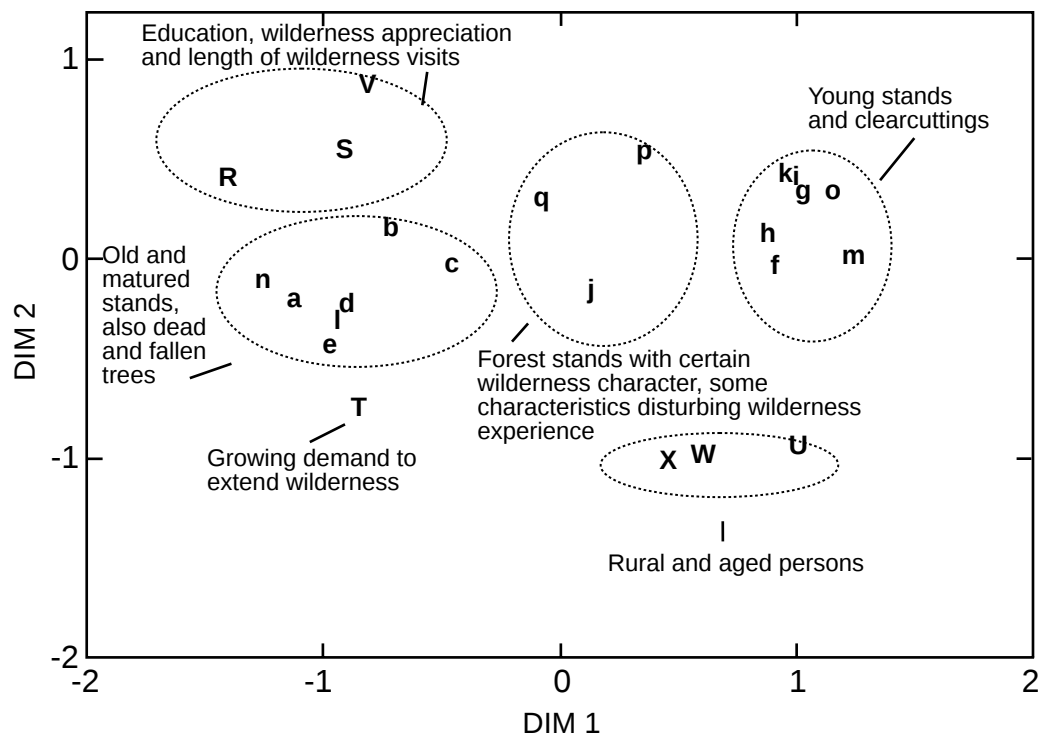
The Nature Characteristics of Finnish Wilderness

The main results of the empirical study will be briefly presented in the following. The results have been presented entirely by Hallikainen (1998, available from the author).

The responses to the open-ended *definitional perception* question in both data sets revealed that the respondents' dominant mental images of wilderness were vast, roadless, uninhabited areas covered mainly with virgin forests. Bogs, especially in their natural condition, were also mentioned fairly often. Wilderness areas had to be silent and remote from roads and inhabited areas. In general, the area should be close to its natural condition.

The expressions of people with different background were fairly similar. However, some differences between the groups of the respondents were found. For example, the images of young, highly educated and urban respondents emphasized expressions of untouched, silent and clean. Highly educated persons and city dwellers also considered wilderness as an uninhabited area more often than countryside dwellers and people with less education. On the other hand, old virgin forests and remoteness were emphasized by less educated persons and countryside dwellers. Furthermore, men emphasized old virgin forest and roadlessness, but women emphasized peace and silence as an important feature of wilderness. Furthermore, women mentioned characteristics like treeless, barren and desolate more often than men did.

The *rankings of the verbally described characteristics* revealed that old virgin forests, mires or bogs, streams, ponds, remote meadows, an old shed or old gray log cabin are appropriate in a wilderness landscape. Paths and camping places are not considered very disturbing in wilderness, but roads or young tree stands and especially clear-cuttings are considered disturbing. To encounter a milk carton or a new red cottage in the backcountry reduce a person's wilderness experience considerably. Furthermore, many constructions like signs along tracks, rubbish collection as well as management activities like fish stocking using natural fish species are well accepted in the wilderness, but restaurant services, machine-managed skiing tracks or fish stocking using rainbow trout are not (fig. 1, fig. 2, fig. 3).



VARIABLE

Dense spruce forest, old and big trees, dead and fallen trees.
 Sparse pine forest, rather old and big trees.
 Sparse birch forest, rather old and big trees.
 Sparse pine forest, old big trees, dead and fallen trees.
 Dense spruce forest, rather old and big trees.
 Dense young pine stand, height of trees about 2 m.
 Open area, fresh slash and stumps on the ground.
 Dense young spruce stand, height of trees about 2 m.
 Open area, fresh stumps, ground is burned.
 Sparse pine forest, old big trees, dead and fallen trees, road in the scenery.
 Sparse spruce forest, rather young and big trees, fresh slash and stumps on the ground.
 Dense spruce-hardwood mixed forest, old big trees, dead and fallen trees.
 Dense young birch stand, height of trees about 2 m.
 Open mire, some scattered old low pines, some of them are dead.
 Open area, fresh slash and stumps on the ground, as well as parallel furrows.
 Open mire, some scattered old low pines, some of them are dead, ditches in the scenery.
 Open area, some scattered, old and big pines.
 Opinion about the number of wilderness areas (1=Too much, 2=Enough, 3=Too few)
 Length of wilderness visits (1 =Day, 2=Weekend, 3=Longer than weekend)
 Growing demand to extent wilderness areas
 Age (1 = 40 years or younger, 2=41-59 years, 3=60 years or older)
 Education (1 =Primary school, 2=Junior high school, 3=High school graduate)
 Growing rurality (1 =City, 2=Village, 3=Countryside)
 Growing rurality during childhood (1 =City, 2=Village, 3=Countryside)

SYMBOL DIM 1 DIM 2

a	-1.10	-0.15
b	-0.51	0.08
c	-0.40	-0.02
d	-0.95	-0.09
e	-0.78	-0.31
f	1.04	0.09
g	1.08	0.33
h	1.05	0.10
i	0.96	0.37
j	0.00	-0.07
k	0.93	0.28
l	-1.00	-0.28
m	1.04	0.13
n	-1.04	0.00
o	1.12	0.29
p	0.55	0.59
q	0.08	0.31
R	-1.23	0.39
S	-0.96	0.68
T	-0.99	-0.77
U	0.99	-0.84
V	-0.80	0.81
W	0.51	-0.86
X	0.43	-1.06

Figure 1—The grouping of the verbally described forest stands based on the wilderness character of the stands, as well as some demographics of the respondents using the Multi Dimensional Scaling.

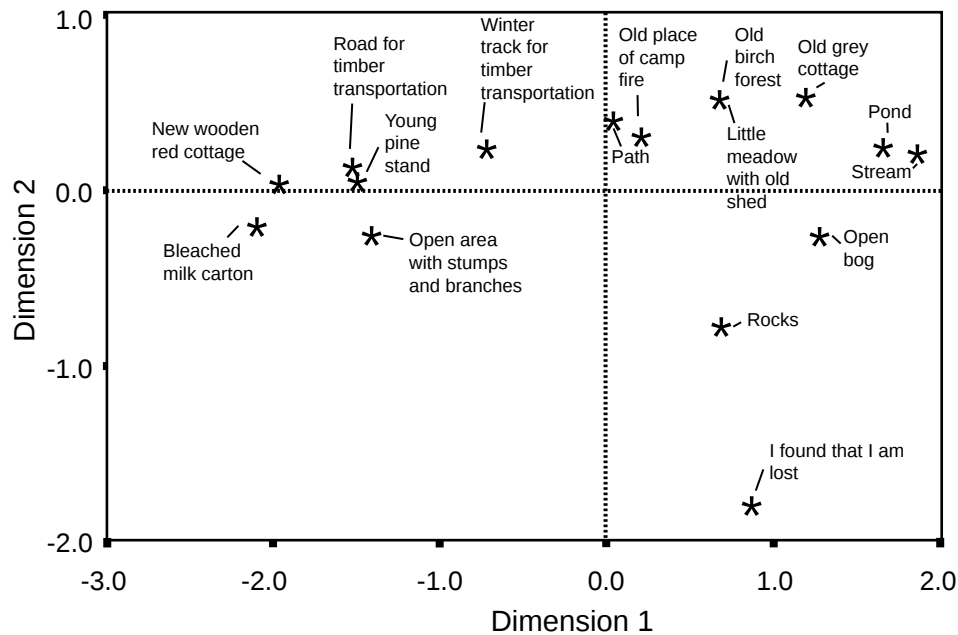


Figure 2—The grouping of the effects of some scenic characteristics which wilderness visitors encounter during wilderness visits on their wilderness experience, using the Multi Dimensional Scaling. The evaluations using a five-point Likert scale are based on the mental images of 303-320 respondents of Data Set 2. The characteristics of high rankings are on the right side and those of low rankings on the left side of the dimension number 1. The characteristics of great variation in the rankings have low values on the dimension number 2.

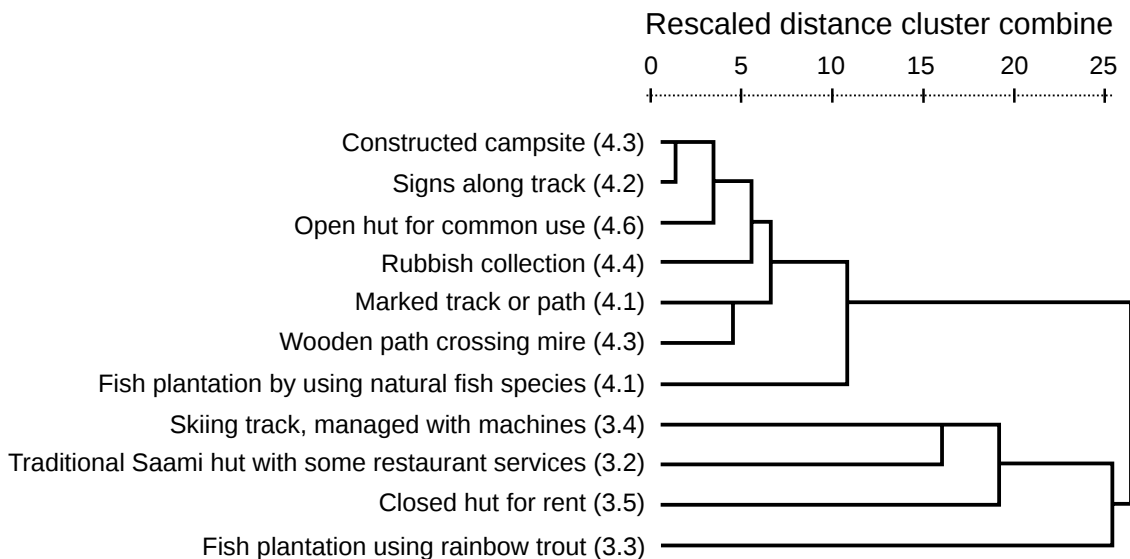


Figure 3—The cluster analysis revealing the appropriateness of some management activities and structures in the wilderness areas. The evaluations using a five-point Likert scale are based on the mental images of 311-333 respondents of Data Set 2. The mean values of the rankings are in the parenthesis.

Some differences between the groups of respondents were found. For example, the wilderness experience of the rather old and less educated respondent was not so easily disturbed by clear-cuts, plowing and mire ditching, compared with younger and more educated persons. Furthermore, old virgin forests and bogs in their natural condition had a stronger effect on the wilderness experience of the young and rather highly educated respondents, compared with the older and less educated persons. The reactions of the countryside dwellers resembled the reactions of older respondents. Old virgin forests and open bogs did not provide as strong wilderness experience for farmers and other agricultural or forestry workers as they provided to the members of other occupations.

The median values of the *scenic rankings of the 54 forest stands* (shown in the slide shows) was combined with the forest characteristic data (age of trees, number of stems etc.), and computed using principal component analysis. The results in figure 4 revealed high principal component loadings of wilderness character on many of the principal components. The highest loadings were on the principal component that describes the high age of trees, the high volume of tree stems, the high amount of epiphytic lichens and the high volume of dead tree stems. Furthermore, wilderness character had a high loading on the principal component describing spruce-hardwood mixed forests. Scenic beauty and a forest's suitability for outdoor recreation had their highest loadings on the principal component that describes pine forests. The number of stumps and the coverage of slash had strong negative loadings on principal component number three, the component of rather high positive loading on wilderness character. The loadings in the principal component number three revealed that slash and stumps impair wilderness experience remarkably, but dense undergrowth of small trees may promote the experience. The third principal component could be named forest management. These management activities did not have a very strong effect on scenic beauty and a forest's suitability for outdoor recreation, at least when there were not very many stumps and slash in the forest or the undergrowth was not very dense.

The differences between the single respondents and between the groups of the respondents in their evaluations were studied as well. The results suggested that one may find individuals with conflicting opinions about the scenic attractiveness of a forest stand, but the opinions of different groups of the respondents, expressed by median or a mean of the scores, were astonishingly similar.

Outdoor Recreation in the Finnish Wilderness Areas

The results of the mail survey (Data Set 1) suggest that 59 % of the respondents had visited wilderness. Males were keener wilderness visitors than females, and better educated persons were keener visitors than less educated persons. In addition, the respondents of northern Finland had experienced wilderness more often compared with the reference groups. Most of the white-collar employees, especially more educated white-collar employees, as well as students and entrepreneurs, had visited wilderness but a higher proportion of farmers had not.

Most of the wilderness visits were short; a typical visit of the respondents of Data Set 1 had been from two to ten hours. However, about half of the respondents had visited for one day and night or longer in wilderness during one visit. Furthermore, only little less than five percent of the respondents usually stayed seven days and nights or longer in wilderness at a time. Cross-tabulation revealed that males usually made longer visits than females. The same could be said about young or middle-aged, as well as rather highly educated respondents, compared with the respondents who had reached the age of 60 years and those who had only primary school education. Furthermore, the urban dwellers usually made longer trips in wilderness than the rural persons. A positive trend between growing urbanity rate and the length of the visit was found.

The respondents of Data Set 1 were also asked whether they stay *night over in wilderness* and, if they stay, what accommodation they prefer. Slightly more than one-fourth of the respondents who had visited wilderness did not stay overnight there. About third of the wilderness visitors preferred outdoor accommodation in a tent or an open shelter called "laavu" or "loude." The same proportion wanted to spend their wilderness nights indoors, in a hut for common use or in a hut for rent.

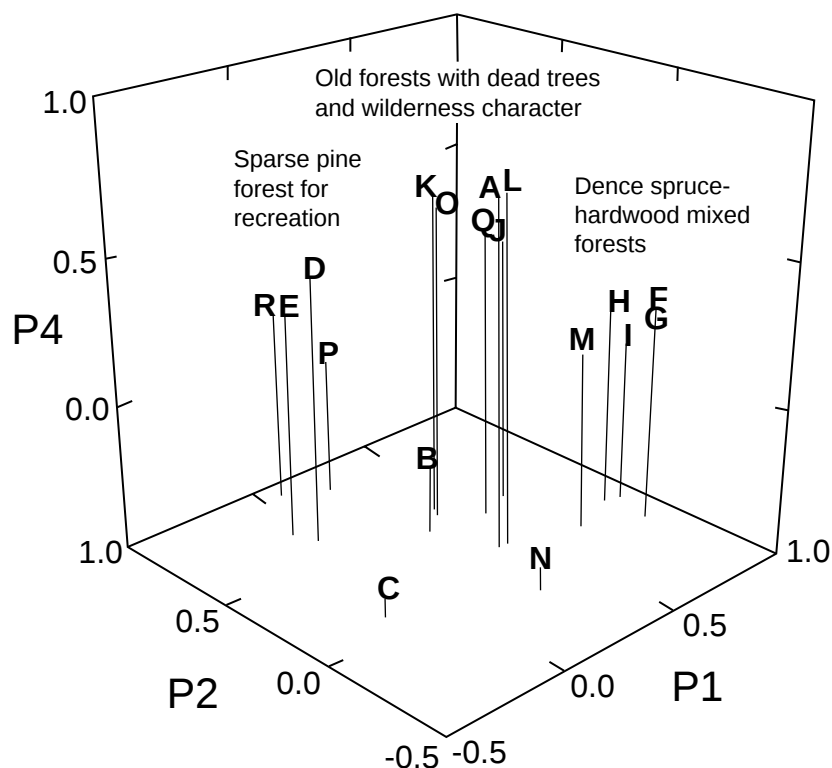
Furthermore, the respondents of Data Set 1 were asked for their *motives* to visit wilderness areas and their *activities* while in wilderness. The respondents had to choose, among given alternatives, their primary, secondary and the third important wilderness motive and activity.

The experience of peace and silence, as well as aesthetic experiences like seeing beautiful scenery, were the most important motives to wilderness visitors. The other important reasons were physical training, togetherness and obtaining natural resources like game, fish, berries and mushrooms. Self-test, solitude and adventures were important reasons only to a minority of the respondents (fig. 5).

The effect of the background of the respondents of Data Set 1 on their *motives* to visit wilderness was studied as well. The aim was to characterize the typical demographics of the respondents belonging to certain motivation groups. Besides the cross tabulations (fig. 6), logistic regression models with a certain motive as independent variable were used.

Physical training was more important to the older and less educated persons. A logistic regression model suggested that it was about three times more evident to a primary school educated person and about twice as evident to a junior high school educated respondent to seek primarily physical training in wilderness, compared with a high school graduate. The coefficients for the youngest (40 years or younger) and the oldest (60 years or older) age class were similar to the coefficient between the lowest and the highest education groups. Furthermore, it was noticed that the importance of physical training decreased with growing urbanization. The experience of peace and silence is the most important second motive and togetherness the most often mentioned third motive among the respondents belonging to this motivation group.

To test oneself in wilderness was the primary motive for few respondents and the statistically significant differences were hard to detect. However, it is obvious that this motive is more important to males and respondents who live in the countryside than to females or urban dwellers.



LABEL	VARIABLE	COMPONENT LOADINGS OF PRINCIPAL COMPONENTS (P)			
		P 1 (26.6 %)	P 2 (16.3 %)	P 3 (13.0 %)	P 4 (19.5 %)
A	Epiphytic lichens (classified)	.301	.104	.056	.754
B	Coverage of slash (% of the ground)	-.027	.045	-.870	-.018
C	Number of stumps/hectar	-.202	.077	-.747	-.418
D	Diameter of maximum pine stem (cm)	-.053	.560	-.462	.475
E	Total volume of pine stems (m ³ /ha)	-.051	.698	-.223	.286
F	Diameter of maximum spruce stem (cm)	.895	-.025	.048	.278
G	Total volume of spruce stems (m ³ /ha)	.902	-.020	.164	.242
H	Diameter of maximum deciduous stem (cm)	.862	.127	-.174	.218
I	Total volume of deciduous stems (m ³ /ha)	.907	.096	.177	.087
J	Total volume of living tree stems (m ³ /ha)	.668	.452	.090	.400
K	Age of median living tree (years)	.266	.331	-.186	.697
L	Total volume of standing dead tree stems (m ³ /ha)	.340	.095	-.008	.791
M	Number of tree stems (d _{1.3} ≥ 7 cm)/ha	.675	.072	.343	.122
N	Number of tree stems (d _{1.3} < 7 cm)/ha	.225	-.160	.557	-.396
O	Total volume of fallen dead tree stems (m ³ /ha)	.170	.216	.174	.700
P	Scenic beauty	.237	.854	.089	.006
Q	Wilderness character	.512	.367	.391	.537
R	Forest's suitability for outdoor recreation	.067	.906	-.069	.211

Figure 4—The loadings of first four principal components (P1-P4) of some forest characteristics and the scenic evaluations of 45 mineral soil forest stands. The variance explained by the principal components is in parenthesis. The total variance explained by the principal components is 75.4 %. The analysis is based on Spearman's rank order correlation matrix.

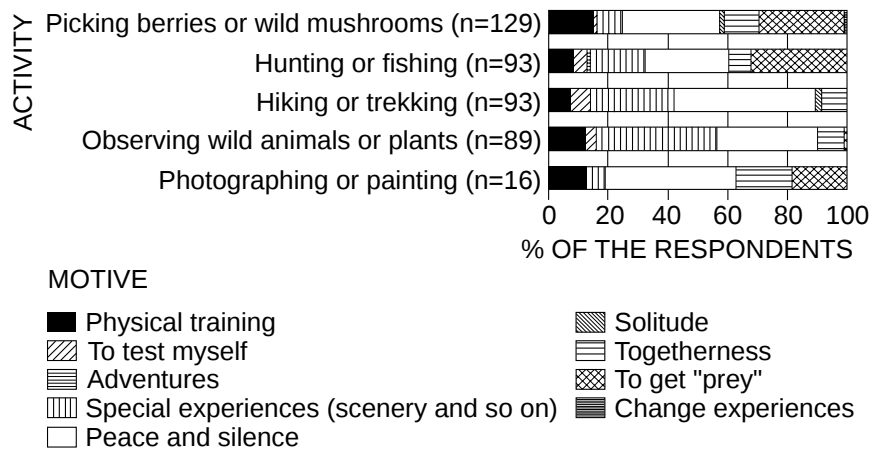


Figure 5—The interrelationship between the primary motives and primary activities of wilderness visits of the respondents of Data Set 1. The p-value of Pearson's chi test is 0.000.

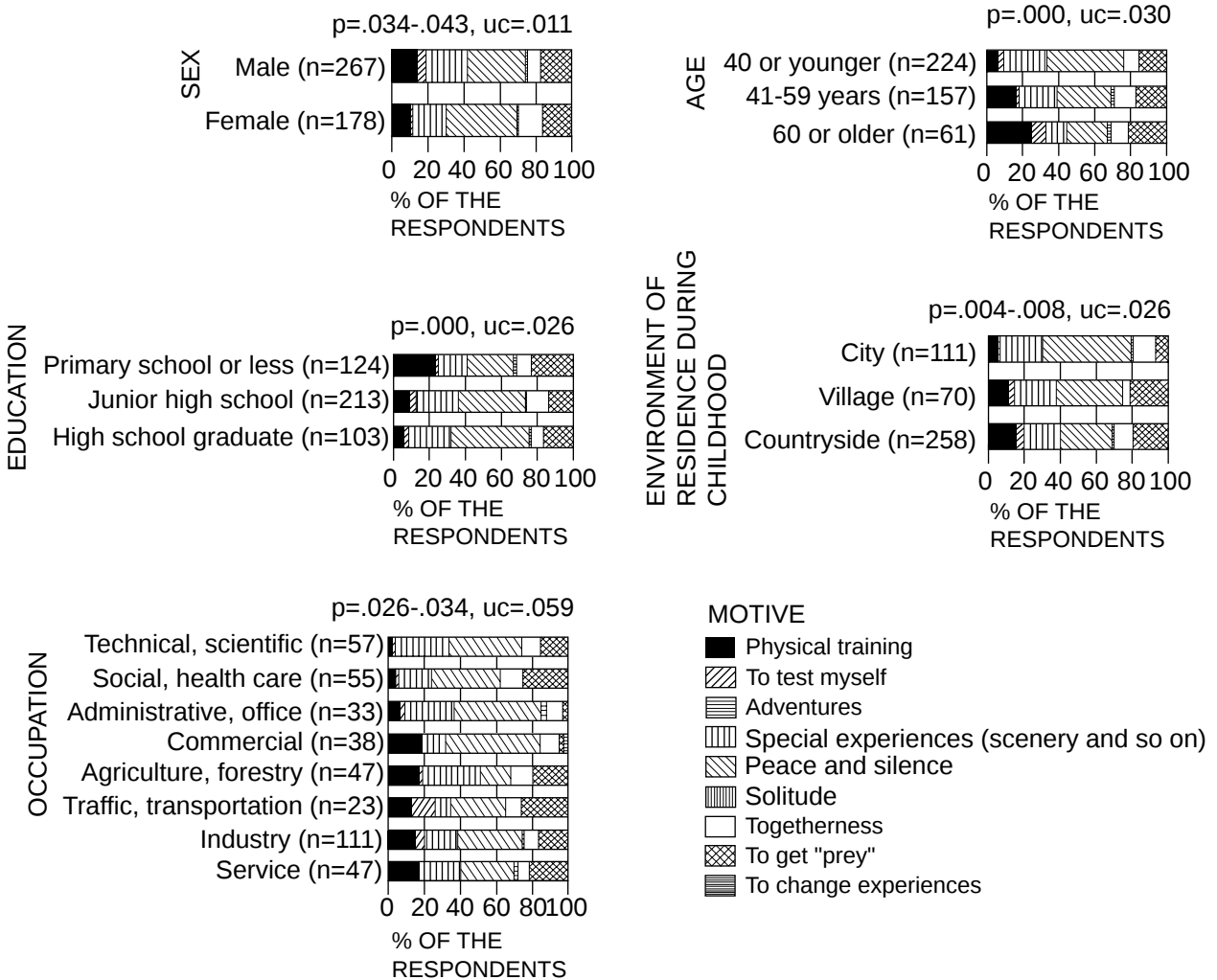


Figure 6—The distributions of the primary motives of the wilderness visits by the groups of respondents of Data Set 1. P denotes the p-value of Pearson's chi-square test and uc the uncertainty coefficient with motive (dependent).

Figure 6 suggests that the *experiences* such as beautiful scenery, seeing plants and animals or staying overnight in wilderness were more important to the young respondents than the older persons. However, the difference was not found statistically significant at 5 % risk level. The experience of peace and silence was the most often mentioned second motive and togetherness the most often mentioned third motive to the respondents belonging to this motivation group.

Peace and silence was the most important motive to visit wilderness. This experience was about three times more important to those 40 years old or younger persons than to those 60 years old or older. If we compare middle-aged respondents with the youngest age group, we notice that the experience of peace and silence was nearly two times more important to the persons belonging to the youngest group. Furthermore, the importance of this experience was closely related to increasing levels of education. Respondents who work in agriculture and forestry did not appreciate peace and silence as much as persons belonging to the other occupation groups. Furthermore, city dwellers mentioned this motive two times more often compared with the countryside dwellers. Beautiful scenery and the experience of togetherness were mentioned most often as the second and third important motive.

Obtaining natural resources (game, berries, mushrooms and so on) was about three times more important to those respondents who had spent their childhood in the countryside or villages than to those who had grown up in towns or cities. Furthermore, there were certain occupation groups, such as administrative, office or commercial persons, who may appreciate this motive less than persons belonging to the other occupation groups. The experience of peace and silence was the most often mentioned second motive.

Togetherness was about two times more important to females than to males. Peace and silence and togetherness are important to these respondents, too.

Following are the characterizations of different *activity* groups (fig. 7).

The primary activity of *observing wild organisms*, animals and plants was important to one-fifth of the respondents. The respondents who had grown up in the southern or western part of the country, represented two and half times more wilderness visitors whose main hobby was to observe wild organisms, compared with respondents who had grown up in the northern part of the country. Along with observing animals or scenery, these respondents wanted to experience peace and silence in wilderness.

Hunting or fishing was clearly the activity of young or middle-aged, less educated men. Furthermore, the respondents who were working in agriculture, forestry, transportation or industry, most of them male, were often interested in these activities. Among the countryside dwellers, these activities were about three times more popular than among the city or town dwellers. Furthermore, in the northern part of the country, these activities were about three times more popular than in the southern part of the country. Along with hunting and fishing, these respondents are often interested in picking berries or mushrooms and observing animals or plants.

Picking wild berries or edible mushrooms was the most important activity to many rather old and less educated women. The effect of sex could be seen in the distributions

between the different occupation groups, but the differences were not very clear. There were, however, many more berry or mushroom pickers among the social or health care workers, compared with the traffic or transportation workers. The respondents belonging to this activity group were also interested in hiking and trekking or observing animals or plants. Berries and mushrooms were not the only things to attract a person belonging to this activity group into wilderness. Berry or mushroom pickers also wanted to experience peace and silence in wilderness.

There were only few respondents whose main activity in wilderness was *photographing or painting*. None of the respondents belonging to the oldest group had chosen these activities as their primary activity. Among the high school graduates, there were over five times more nature painters or photographers compared with the lower educated respondents. Observing wild animals or plants, as well as hiking and trekking, were important to this group of respondents as well. The experience of peace and silence was perhaps even more important to wilderness artists than having pictures or paintings.

Hiking and trekking were the primary activities of the middle-aged respondents. Furthermore, a linear trend could be seen in the growing importance of this activity with growing education. Furthermore one may find more hikers and trekkers among the village dwellers than among the countryside dwellers. Only a few of those who work in agriculture or forestry or who had grown up in Lapland were interested in hiking and trekking, compared with the reference groups. Observing wild animals or plants and picking berries or mushrooms were important activities to hikers and trekkers. A hiker and trekker seeks, first of all, peace and silence along with scenic experiences, or other impressive experiences such as encountering wild animals or the experience of staying the night in wilderness.

The Assessment of Finnish Wilderness Areas

About 96 percent of the respondents of Data Set 1 who answered the question (n = 837) considered wilderness preservation and protection important. Slightly less than four percent of the respondents (34 persons) did not see any reasons for wilderness preservation. The results of both data sets were very similar.

The three most important reasons for wilderness preservation in the results of both data sets were the following: 1) the conservation of species, 2) wilderness preservation for future generations and 3) wilderness recreation. Even the order of these reasons was the same in both data sets. The respondents of Data Set 2 had, however, emphasized wilderness areas' role in preserving nature's own character, naturalness. The other frequent reasons for preservation were to ensure the function of biosphere and preservation of nature's beauty, as well as the need to keep nature clean and unpolluted. Furthermore, wilderness areas were considered important for the preservation of Finland's natural forests. Although the cultural importance of the wilderness areas was expressed directly, the idea was also reflected in the expression of originality and authenticity that wilderness areas include. The importance of wilderness areas to nature hobbies and nature education was emphasized as well.

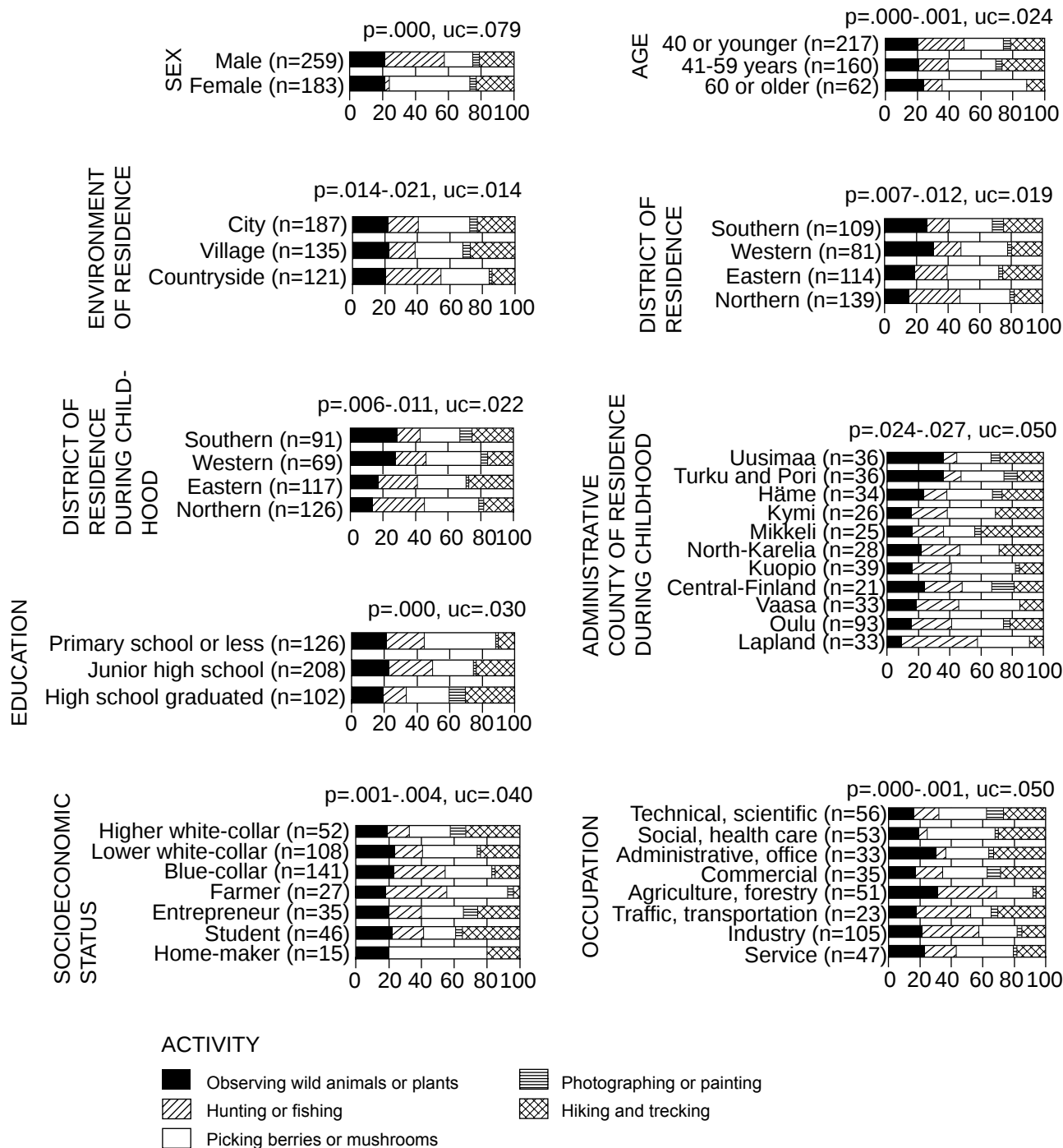


Figure 7—The distributions of the primary activities of wilderness visits by the groups of respondents of Data Set 1. P denotes the p-value of Pearson's chi-square test and uc the uncertainty coefficient with motive (dependent).

Furthermore, concern about the rarity of wilderness areas was clear. The general anthropocentric meaning of the areas was expressed by saying that human beings need original nature.

Some respondents said that wilderness areas are important to ecological research, and they are reference points for the impacted areas or represent ecological museums. Furthermore, some respondents mentioned the intrinsic values of wilderness; to preserve wilderness areas is mankind's

duty for nature itself. A couple of the respondents mentioned that wilderness areas are important to the defense of the country or as natural sources of livelihood. Some respondents had noticed that there are many countries without any wilderness areas. Thus, our duty is to preserve the areas for the people of those countries. The reasons for wilderness preservation and conservation expressed by different groups of the respondents are rather similar. Furthermore, the results from respondents who had been interviewed by

telephone were rather similar to the results from the questionnaires.

The respondents of Data Set 2 were asked for their opinion about the extent of wilderness areas in Finland and the extent of protected wilderness areas in the southern and northern part of the country. As a result, only a minority of the respondents felt that there are too many wilderness areas, or that they are too large, in Finland, and one-third wished that we would have more wilderness areas. However, about seven percent thought that the protected areas covered too much territory in northern Finland. On the other hand, nearly one-third of the respondents hoped for more protected wilderness areas in the northern part of the country. About half of the respondents hoped for more protected wilderness areas in the southern part of the country.

Another part of the study focused on what is a person like who wants more protected wilderness areas in northern Finland. The logistic regression models had been constructed to find out what demographics of the respondents best explained or predicted the differences between the respondent groups. A person's age and socioeconomic status proved to be the best independent variables. The youngest group (40 years or younger) accounted for more than twice of those who hope for more protected wilderness areas in northern Finland, compared with the oldest group (60 years or older). Furthermore, compared with farmers, there were about from three to four times more persons in the other socioeconomic groups who hope for more protected areas in the area.

The respondents were also asked for their favorite wilderness areas in Finland. Their answers revealed that most of the favorite areas were situated in the northern part of the country. However, the respondents found their favorite wilderness areas in all parts of the country. The Urho Kekkonen National Park in Lapland was the most popular area.

Finally, the respondents were asked if they want to give a money donation for wilderness preservation. About half said that they would give at least some money for the purpose. Age and socioeconomic status, as well as the administrative district of residence were the best variables to explain the differences between the groups. The coefficient between the most willing age group, 40 years or younger, and the oldest age group was about two. Compared with farmers, the members of the other socioeconomic groups were from two to six times more willing to give at least some money for the purpose. Those who lived in southern part of the country were about from two to three times more willing to give a donation compared with those who lived in Lapland. The sums of the money were rather small: 70 Finnish marks on the average (mean) and 30 Finnish marks expressed by the median value. Furthermore, about half of the respondents expressed their willingness to spend some money by traveling for their wilderness visits. The mean value of the annual wilderness visits was about thousand kilometers, the median 438 kilometers.

Discussion

The mental images of the respondents revealed by the definitional perception question (Heberlein 1982, Hummel 1982) are obviously rather spontaneous images. They do not necessarily have any spatial connections. It is remarkable

that the images appeared to be very similar in the two data sets. People's mental images about Finnish wilderness obviously carry ancient cultural meanings and values. These meanings and values have to guide wilderness management being the "standards beyond the standards" (Manning 1992). The strongest wilderness culture in Finland developed in the southern part of the country (Voionmaa 1947). The backcountry areas outside the inhabited rural areas in the Middle Ages resembled the images that were reflected in the answers of this study. Although our statutory wilderness areas and most of the other conservation areas are situated in the northernmost part of the country, where fells dominate the landscape, fells do not dominate the spontaneous wilderness images of the Finnish respondents. On the other hand, these areas stand for wilderness for most of the respondents. Our mass media, and particularly some hiking guides, strongly emphasize the role of the northern fell areas as wilderness. An interesting feature in the expressions was the proportion of positive expressions. Thus, wilderness has not been an evil or bad thing, an object to win, tame or change to something else similar to the ancient Anglo-American classicism heritage (Nash 1982; Short 1991). Moreover, Heberlein (1982) and Hummel (1982) have used definitional perception question in their studies directed at American students. Despite many similarities in the results between Finnish and American mental images, the main differences were the lack of expression of roadless and uninhabited among the most often mentioned characteristics in the American studies.

The results suggest that certain forestry activities, such as slight thinning, can be applied without losing the opportunity for certain wilderness experience. However, forest stands in the beginning of their succession do not promote the wilderness experience at all. The spruce-dominated forests have been considered as more wilderness-like than the pine-dominated forests. It is understandable because matured pine forests are full of light, and it is easier to get oriented and roam in these forests. Getting lost may be an important part of the wilderness experience. The experience of getting lost may be the Experience in the meaning of Heidegger's (1927) philosophy. The feelings of fear and homelessness (see Vattimo 1989) may come into mind when person's "mental mapping" do not work and he or she feels lost in a dense and gloomy spruce forest. Furthermore, compared with the pine forests, the spruce forests shown to the respondents in this study were characterized by the bigger volume of stock, the bigger diameter of tree stems, the smaller number of stumps and the smaller coverage of slash. These characteristics may have had an influence on the spruce forests' higher wilderness character. However, old virgin pine forests that include big dead trees are an important part of the Finnish wilderness, besides the bogs and the other wetlands. The result of the beauty and recreation value of pine-dominated forests or "pure" birch forests, compared with spruce-dominated forests, is consistent with the results of many previous Finnish studies (for example Kellomäki & Savolainen 1984; Pukkala and others 1988; Savolainen & Kellomäki 1981).

Snags and high age of trees are the features in the landscape that promote the wilderness experience. These are the features of a forest in its natural condition, at the end of the forest's natural succession. Although the concept of

naturalness is many-sided and difficult to define (see Wohlwill 1983), it is evident that the old trees, and particularly snags, are an important feature of a natural forest, and thus a wilderness. The famous Finnish forest researcher, A. K. Cajander, defined a wilderness forest very strictly. He said that he had visited a wilderness forest only once. The forest was located in an island of the Lena-River in Siberia. The forest had not been burned, and thus it was very old and full of dead trees (Keltikangas 1984). Thus, although it is evident that nearly all forestry activities reduce the wilderness experience in a certain degree, a forest manager should leave, as much as possible, the oldest trees and snags in a forest regeneration area to exemplify wilderness (the concept of exemplification, see Kalanti 1990). Thus, the management schedule of so-called joined production (Saastamoinen 1982) where timber production and the production of wilderness experiences are carried out in the same time, have got an opportunity to realize in a certain degree.

The structures, like open huts for common use, as well as wooden paths crossing bogs reflect an ancient wilderness culture. In many of our national parks, wilderness areas and the other nature conservation areas, these structures are present. Some more modern structures and other management activities, such as fish stocking have been increasingly accepted as a part of our wilderness. However, we should follow the old traditions as much as possible if nature conservation and other important reasons do not need the modern construction and management.

Most of the wilderness visits made by the respondents were rather short as found in the United States studies. (Roggenbuck & Lucas 1987). Thus, it is important to retain some small wilderness for short-time hikers. On the other hand, large wilderness areas like Urho Kekkonen National Park, are important to the short-time visitors as well (see also Saarinen 1995). Although about half of the respondents wanted to experience wilderness during the day, another half wanted to experience a night or several nights in wilderness using a tent or an open wind-shelter, called "laavu," with a campfire in front of the shelter are traditional ways to stay overnight in wilderness. On the other hand, a family cabin on the shore of a lake or sea is obviously the most preferred place to stay the night in nature, and is now an important part of the Finnish tradition and lifestyle (Vuolle 1992). A typical Finnish wilderness visitor resembles an American one, being rather young and usually a highly educated male living in a town or a city, with a high income and a professional or technical occupations. (Lucas 1990; Roggenbuck & Lucas 1987).

Higher criteria for the wilderness environment have been hardly the reason why a smaller proportion of the older, less educated respondents or the farmers experienced wilderness. A possible explanation may be that the mental images of older people have changed over the decades (Schreyer & Driver 1990). The most reliable explanation, however, is that the above mentioned respondents have not been as interested in wilderness as their recreation environment, compared with the other respondents. Nature, even "wild" nature, has been an everyday environment to many old, rural persons, related closely to their sources of livelihood (Järvikoski & Kempainen 1991).

The Finnish wilderness activities reflect ancient Finnish wilderness culture, but the motives behind activities in

wilderness changed during the centuries. To get fish, game, berries and mushrooms is still important to a big proportion of the Finnish wilderness visitors, but the other motives, especially the peace and silence, have become increasingly important. Peace and silence have been bundled into a single motive in this study. However, the concepts of peace and silence differ from each other to a certain extent. Peace is a wider concept than silence and includes a social dimension too (Saastamoinen 1996). The social dimension includes the sub-dimensions like "being voluntarily separated from the other people and noise caused by them" as well as "an escape from everyday pressures." Furthermore, peace includes a spatial dimension, to have enough space around oneself. (Saastamoinen 1996). The first mentioned sub-dimension of peace is equivalent to the motives of privacy or solitude, important motives of the wilderness recreation (see Hammitt 1982; Hammitt & Madden 1989; Roggenbuck 1990). Rossman and Ulehla (1977) mentioned wilderness as an excellent environment to experience peace and silence, as well as to obtain a different perspective on a person's own life. Peace and silence have been noticed as an important motive in other studies revealing the wilderness motives of Finnish wilderness hikers as well (Saarinen 1995; Saastamoinen 1972).

It is a little surprising that the Finnish respondents did not emphasize freedom as an important wilderness motive. The motive of freedom has not directly been emphasized in other empirical Finnish outdoor recreation studies (Sievänen 1992, 1995; Telama 1986). The motive of freedom is obviously closely connected with the wilderness privacy (Hammitt 1994; Hammitt & Madden 1989). Freedom may be closely related to the "escape from everyday pressures to nature," to a simple life without any constraints (see Fromm 1977; Kaplan & Kaplan 1989; Telama 1992).

It is obvious that there are persons, but perhaps not very many, among the Finnish people who want experience wilderness alone (Saarinen 1995; Telama 1992; Uusitalo 1993). Everyday pressures may certainly "push" a person to solitary nature, and particularly to solitary wilderness visit. As Telama (1992) believes, the motivation of "escape from everyday pressures" is closely related to the wilderness experience. However, solitude does not necessarily mean that the person must be completely alone. As Hammitt (1982) mentioned, the dimensions of solitude are: the experience of a remote nature environment, the experience of freedom, the experience of being together with friends in a little group and the experience of own personal identity ("being myself"), free from society's pressures. Thus, the motive of togetherness is not necessarily the opposite of solitude, but to be "alone in a group" (Hammitt 1982; Telama 1992). Furthermore, the importance of togetherness to nature and wilderness visitors has been noticed in previous studies (Saarinen 1995; Saastamoinen 1972; Sievänen 1992).

The reasons for wilderness preservation mentioned in this study reveal that, besides ecological and recreational values, the Finnish respondents do appreciate our wilderness areas as an important part of our national culture and lifestyle, similar to the American people do (Thompson 1987). Furthermore, as Brown and Manfredo (1987) mentioned, the cultural values attributed to wild nature are an important part of social values, and these values can be noticed in a person's ethical attitudes and in his or her other attachments.

In this work, the respondents were asked if they want more wilderness conservation areas in Finland. The results should be interpreted with caution. It is obvious that many persons answered the question without thinking about the economical or social consequences of the conservation. Particularly if the negative consequences may affect the person, his or her way of thinking may change. Järvikoski and Kemppainen (1991) have pointed out that Finnish people do not usually underestimate environmental problems, but the attitudes of people belonging to occupations that use nature for economical purposes become qualified when economical realities and environmental problems conflict. Furthermore, although the sums of money in the contingent valuation question, for example, compared with the results obtained by Kriström (1989) in Sweden, were rather small, the results do not necessarily tell very much about respondent's willingness to pay, but merely about respondent's attitudes.

The respondents found their favorite wilderness areas in nearly every part of the country. Thus, a manager should take the wilderness values into account in his or her job also outside the statutory wilderness areas. Some areas like Urho Kekkonen National Park, were, however, much more popular than the others. The popularity of the Park may be due to the extra status brought to it by the famous books written by Kemppinen (1959, 1961). None of the Finnish wilderness areas have been described so widely in different publications (Häyrinen 1989). Besides the extremely beautiful and varied landscape (Häyrinen 1989), structures, good paths and tracks may have increased the popularity of the Park. Saastamoinen (1972) found that the visitors of Urho Kekkonen National Park appreciated its landscape, good opportunity for skiing and hiking, as well as the opportunity for peace and silence and the low number of other hikers in the area. Despite of the popularity of the area and increased number of visitors compared with the year 1972, peace and silence can still be found in the Park (Saarinen 1995).

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