



## **Recreational use and management of Kuro-dake campsite, Daisetsuzan National Park, Japan**

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Campsites serve as designated places for camping without further formal management in Daisetsuzan National Park (DNP), northern Japan. This study described the existing conditions of the Kuro-dake campsite, and examined the results from the questionnaire survey with the campsite users. There is an old campsite near the current site, which was closed in 1992 because of the severe soil erosion and because of the purpose to conserve drinking water used at the nearby mountain hut. This study also examined the soil erosion occurred at the old site.

The land surface of the current campsite has no vegetation cover and the surface soil layer of 20–40 cm in thickness has been eroded. This erosion has occurred since the opening of the site in 1992. The annual number of campsite users was nearly 2,000 in 1993. Now, the number has reduced by 700–1,300 per year. At crowding nights, about 50 to 80 users pitch their tents in the site. When the number of tents exceeds 45–46, the late comers tend to pitch their tents outside of the campsite, i.e. in front of the nearby mountain hut and even on the trail. Such a situation is not appreciated not only by mountain hut users but also by the surrounding nature.

We conducted face-to-face questionnaire survey with 136 campsite users in the summer of 2017. About 80% of the campsite users do not prefer closing the current site, and only 38% feel that the campsite is too small. Nevertheless, expanding the site would be a good option to avoid overpitching tents in the current site.

Meanwhile, the old campsite had faced severe soil erosion issue, because the site is covered by thicker snow and has a steeper slope gradient. The air photograph interpretation shows that the area of the old site in 1971 and 1987 was 1.5 times and 1.9 time larger than that in 1945, respectively. The 3-dimensional analysis by the detailed topographic map with 20-cm contour lines, which was produced from the air photographs, shows that there was no flat ground surface for tents in 1992.

Although the site conditions such as snow depth and slope gradient are different, further soil erosion is expected at the current campsite. There is an increasing tendency in the number of users of the current campsite in the past 10 years or so. To minimize further soil erosion at the current site, continuous monitoring of the recreational use and suggestions based on the scientific results are important.