

A Regional Comparison of Hunter and Harvest Trends of Sika Deer (*Cervus n. nippon*) and Wild Boar (*Sus s. leucomystax*) in Japan from 1990 to 2013

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Abstract : The study treats human dimensions of hunting by conducting statistical data analysis and providing decision-making support by examples of good prefectural governance and successful wildlife management, crucial to reduce pest species and sustain a stable hunter population in the future. Therefore it analyzes recent revision of wildlife legislation, reveals differences in administrative management structures, as well as socio-demographic characteristics of hunters in correlation with harvest trends of sika deer and wild boar in 47 prefectures in Japan between 1990 and 2013. In a wider context, Japan's decentralized license hunting system might take the potential future role of a regional pioneer in East Asia. Consequently, the study contributes to similar issues in premature hunting systems of South Korea and Taiwan. Firstly, a quantitative comparison of seven mainland regions was conducted in Hokkaido, Tohoku, Kanto, Chubu, Kinki, Chugoku, and Kyushu. Example prefectures were chosen by a cluster analysis. Shifts, differences, mean values and exponential growth rates between trap and gun hunters, age classes and common occupation types of hunters were statistically exterminated. While western Japan is characterized by high numbers of aged trap-hunters, occupied in agricultural- and forestry, the north-eastern prefectures show higher relative numbers of younger gun-hunters occupied in the field of production and process workers. With the exception of Okinawa island, most hunters in all prefectures are 60 years and older. Hence, unemployed and retired hunters are the fastest growing occupation group. Despite to drastic decrease in hunter population in absolute numbers, Hunting Recruitment Index indicated that all age classes tend to continue their hunting activity over a longer period, above ten years from 2004 to 2013 than during the former decade. Associated with a rapid population increase and distribution of sika deer and wild boar since 1978, a number of harvest from hunting and culling also have been rapidly increasing. Both wild boar hunting and culling is particularly high in western Japan, while sika hunting and culling proofs most successful in Hokkaido, central and western Japan. Since the Wildlife Protection and Proper Hunting Act in 1999 distinct prefectural hunting management authorities with different power, sets apply management approaches under the principles of subsidiarity and guidelines of the Ministry of Environment. Additionally, the Act on Special Measures for Prevention of Damage Related to Agriculture, Forestry, and Fisheries Caused by Wildlife from 2008 supports local hunters in damage prevention measures through subsidies by the Ministry of Agriculture and Forestry, which caused a rise of trap hunting, especially in western Japan. Secondly, prefectural staff in charge of wildlife management in seven regions was contacted. In summary, Hokkaido serves as a role model for dynamic, integrative, adaptive "feedback" management of Ezo sika deer, as well as a diverse network between management organizations, while Hyogo takes active measures to trap-hunt wild boars effectively. Both prefectures take the leadership in institutional performance and capacity. Northern prefectures in Tohoku, Chubu and Kanto region, firstly confronted with the emergence of wild boars and rising sika deer numbers, demand new institution and capacity building, as well as organizational learning.

Keywords : hunting and culling harvest trends, hunter socio-demographics, regional comparison, wildlife management approach

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