

Development of simple monitoring methods for population density and CSF infection status of wild boar

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[Abstract]

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We aimed to develop a simple monitoring method to determine wild boar density and CSF infestation used environmental DNA methods over a free-ranging, and to develop capture strategies and CSF infestation prevention strategies, and to identify social requirements for community-based wild boar management. The results obtained were as follows. (1) We succeeded in developing a simple trace indicator that can be surveyed simultaneously with sika deer fecal pellet survey and established a method for estimating spatial habitat density in combination with REST model data. We also succeeded in saving labor by verifying the accuracy when the number of cameras was reduced based on the obtained data. (2) We succeeded in developing the "nestedPCR method" for detecting CSF virus from environmental water and were able to show the number of samples in relation to the wild boar density. We also established a method to detect CSF virus from the tails of captured individuals. (3) We calculated the home range size and dispersal distance of wild boars using GPS collars and identified areas of intensive use such as staying on steep slopes during the day and using abandoned fields at night. Based on this data, criteria for bait vaccine application range were provided. Guidelines for sharpshooting methods were developed as an effective means of capturing wild boars under low densities after CSF outbreaks. As a method to properly extract wild boars from camera trap video data for the purpose of improving survey efficiency, we successfully developed a deep learning program that combines a discrimination model from MegaDetector and domestic images. (4) The construction of a "regional cooperative wildlife management OODA loop" and the capture data management system "Econnect" were developed as a capture data system that will serve as the basis for wild boar management. We also succeeded in developing a "comprehensive one-stop information management system for wild boar trapping" based on the operation of the system. For the above specific methodologies, four manuals, one guideline, and one open source program were developed and released.

(<https://sites.google.com/view/hyogowildlife/suishin4g2001>)

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