Name	Supervisor	Title	Abstract
Junya Watanabe	Atsumi Miyake	Research on the relationship between	In the manufacturing industry, the number of "drawn into a
		aging machinery with insufficient safety	machine" injury accidents and fatal accidents is still high and
		measures and occupational accidents	has stopped declining. Along with these, many industries in
			Japan are facing problems related to aging machinery and
			infrastructure. In the manufacturing industry, many production
			facilities were introduced as a result of capital investment for
			production expansion during the period of high economic
			growth. In the subsequent period of flat growth, it is presumed
			that the aging machines remained in position due to low
			additional investment. According to the report entitled
			Investigation and Analysis Project for Safety Measures in
			Aging Production Equipment conducted by the Ministry of
			Health, Labour and Welfare, many aging machines are still
			used. It also shows two occupational accident risks: aging
			machines and insufficient protective measures are present. In
			this study, the number of remaining aging machines with
			insufficient protective measures was estimated by applying the
			Weibull reliability function. A correlation with the number of
			"drawn into a machine" occupational accidents which has
			stopped declining was examined. In addition, aging machines
			that were manufactured in the past and have safety defects in
			view of the current international technical level, but have been

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	used for a long time were defined as "existing non-conforming
	machines". The correlation between the estimated number of
	remaining machines and the number of "drawn into a machine"
	occupational accidents which has stopped declining was found.
	Furthermore, when estimating the number of remaining
	machines in the future from the estimated values, it was shown
	that the rate of decline is slow, and no significant reduction in
	occupational accidents can be expected assuming that there is a
	correlation between the number of remaining machines and the
	number of fatal accidents in the future.
	In addition, regarding occupational accidents caused by
	machines, there are many examples of research that analyze
	individual machines and individual occupational accidents.
	Safety measures are also studied for individual cases. When
	considering safety measures for aging machines, it is important
	to understand the characteristics of aging machines and the
	characteristics of occupational accidents caused by them.
	However, there are no examples of analysis of these
	characteristics.
	Another purpose of this study is to examine the validity of the
	characteristics of aging machines regarding "aging machines"
	and "insufficient protection measures," which were shown as
	occupational accident risks of aging machines according to the
	Ministry of Health, Labor and Welfare's "report." To examine

	the validity, the correspondence analysis was conducted, which
	is a method of multivariate analysis, based on the cross-
	tabulation data shown in the "report." The correspondence
	analysis was also conducted to examine that appropriate
	management methods such as risk assessment was not
	sufficiently implemented as an issue in the management of
	aging machines and occupational accidents caused by them. As
	a problem from worker's perspective, many occupational
	accidents caused by aging machines occur among middle-aged
	and elderly workers with short years of experience, but there
	are differences in the causes of occupational accidents among
	middle-aged and elderly workers compared to younger
	workers. It was examined the validity of the possibility that
	there was a difference between the education and training
	provided to young workers with short experience and the
	education and training required of middle-aged and elderly
	workers with short years of experience.
	By applying multivariate analysis, it was shown that it was
	possible to understand problems and confirm the validity of the
	characteristics of aging machines and the characteristics of
	occupational accidents caused by them.

Katsumi Tamada	Fumito Koike	Studies on the decline of grassland	Wetlands, grasslands, and farmlands are widely spread in
		birds and habitat use in rural area by	Hokkaido. Not only the natural grasslands but also rural area is
		line transect census in Hokkaido	main habitat for grassland birds. Recently, some grassland birds
			have been decreasing. SATOYAMA is one of priority area to
			promote conservation of biodiversity. Aims of this study is to
			address these two issues. To conserving the grassland birds, it
			is necessary to evaluate the population status, however, before
			to compare the past and present avifauna, methodological study
			about line transect census is necessary. Seasonal change in the
			number of individuals observed in line transect census were
			confirmed. Based on this result, I compared the avifauna
			between 1970-1980s and 2002-2003. Drastic decline of
			Yellow-breasted bunting was confirmed, and population of 4
			species might be decreased. I investigated habitat use of
			grassland birds in rural areas as an alternative habitat. Eurasian
			Skylarks often use cultivated land, in other hand other
			grassland birds often use weedy land. In rural areas, the
			presence of weedy land might be important.