

Original paper

The Prices of Singing Orthoptera as Pets in the Japanese Modern Monarchical Period

Ceny chovných Orthopter podčas japonske cesarske doby

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Abstract: Articles about the prices of singing Orthoptera in five Japanese newspapers published between 1888 and 1937 are reviewed in this study. According to these articles, 14 species of Orthoptera were sold at festival stalls. I state their prices and have converted them to present-day U.S. dollar amounts. The price of *Meloimorpha japonica* (de Haan, 1844), of the family Eneopteridae, was the most inexpensive and most stable among the 14 species. Other topics, such as how they were used in different settings, are also introduced.

Abstrakcijny: Jest podan pregled cen chovných Orthopter podog členkoch publikovanych v peti jaonskich gazetach medzi lety 1888 a 1937. Podol týchto členkoch bylo v tutoj době prodavano 14 odrod Orthopter. Paper podava razvoj ih cen prevedenych do dnesnich amerikanskih dolarov. Cena *Meloimorpha japonica* (de Haan, 1844), z rodiny Eneopteridae byla najnižši a najstabilnejši zo vseh 14 odrod. Medžu inimi predmety jest takože diskutovano ih upotrebenje při različnyh okolnosteh.

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1 INTRODUCTION

Many species of crickets sing in grasslands or woodlands and can entertain people with their beautiful songs. It is a custom in some countries to breed crickets as pets¹. Some entomologists have been interested in maintaining crickets in captivity as a hobby. For example, Weidner (1994)² introduced Greek cages for keeping crickets. Jin (1994)³ reported that Chinese people breed crickets in order to have them fight each other as a game.

Since ancient times, Japanese people have also admired crickets and katydids, and often bred them in cages to appreciate their songs. We have given some singing species of Orthoptera artistic Japanese names. The Japanese names of *Svistella bifasciata* (Shiraki, 1913) (Trigonidiidae) and *Ornebius kanetataki* (Matsumura, 1904) (Mogoplistidae) are Kusa-hibari and Kane-tataki, which mean a “skylark in grasslands” and a “ringer of bells,” respectively.

In the Edo Period (1603–1868), merchants specializing in singing crickets and katydids appeared in Edo City (present-day Tokyo) and sold insects to ordinary people. Such Japanese sensibilities often appeared strange to foreigners. For instance, Frost (1959)⁴ and Pemberton (1994)⁵ noticed Japanese people’s interest in singing Orthoptera and reported on this phenomenon. Moreover, a writer who visited Japan from the U.K., Lafcadio Hearn (1850–1904), also marvelled at this aspect of Japanese culture and left detailed records in which he included what he observed and heard about the insects in Japan (Hearn, 1926)⁶. In the summer of 1938, during a stay in Tokyo, some German Nazi boys from a Hitler Youth group bought crickets as pets in cages while shopping, according to a newspaper article (August 18, 1938, Tokyo Asahi Shimbun).

In Japanese history, the period between 1868 and 1945 (after the Edo Period) consists of the modern monarchical days. In that age, many newspaper publishing companies were established and newspapers became popular among ordinary Japanese people. I focus on newspaper articles in the modern monarchical period and will consider the prices of singing Orthoptera pets by examining newspapers. The popular culture of that period generally preserved the appearances of the Edo Period, when expert merchants sold crickets and katydids as pets. Therefore, newspaper articles in relation to singing insects could be expected to appear in the newspapers of the monarchical period.

2 MATERIALS AND METHODS

I mainly researched three newspapers: *Yomiuri Shimbun*, *Tokyo Asahi Shimbun* (now called the *Asahi Shimbun*), and the *Miyako Shimbun* (the present-day *Tokyo Shimbun*) from Japan’s modern monarchical days. The Japanese word *shimbun*, means “newspaper.” In addition, I referred to *Chûô Shimbun* (a defunct newspaper), *Un-yu Nippô* (also defunct), *Wakatsuki* (1911)⁷ *Shiraki* (1927)⁸ and *Nakabayashi* (1930)⁹.

As mentioned in the results, I found many newspaper articles that contained information, such as the prices of singing Orthoptera as pets in Tokyo’s market, a collector’s daily pay, and other matters.

In Japan’s modern monarchical days, the main forms of money were yen and sen. One yen is 100 sen. Most prices of singing Orthoptera in those days were less than 100 sen (Tab. 1 and 2). In contrast, the money used in Japan currently is yen alone as sen are no longer in circulation. Moreover, needless to say, the price is very different depending on the period. In fact, it is very difficult to have a real feeling of the original prices when indicated in sen.

Consequently, I have tried to convert the prices of those days to the present value of today’s U.S. dollar, an international standard currency. The price of the *Tokyo Asahi Shimbun* per copy in the modern monarchical days ranged from one to four sen. In contrast, the general price of a newspaper per copy in contemporary Japan is about 100–160 yen. At the current yen/U.S. dollar exchange rate (January 2017), the Japanese yen has appreciated to about 110–120 yen against the dollar. Therefore, I very roughly estimated that the *Tokyo Asahi Shimbun* cost \$1 per copy. For example, the *Tokyo Asahi Shimbun* (two sen per copy at the time) reported in 1911 that a species of cricket, *M. japonica* (de Haan, 1844) cost six sen. In that case, I very roughly approximated the price of an individual *M. japonica* in 1911 to U.S. \$3 currently.

I have designated the abbreviations of five newspapers: *Yomiuri Shimbun*, *Tokyo Asahi Shimbun*, *Miyako Shimbun*, *Chûô Shimbun*, and *Un-yu Nippô* as Y, T, M, C, and U, respectively. For instance, when I cite a newspaper article from December 8, 1941 in *Miyako Shimbun*, I describe the authentic article as “M. 8. 12. 1941.”

Scientific names and the classification system of Japanese Orthoptera in this study follow Ichikawa et al. (2006)¹⁰.

3 RESULTS AND DISCUSSION

3.1 Singing Orthoptera and the Pet Business

I found many articles on the prices of singing Orthoptera in the five newspapers that were published between 1886 and 1941. It became clear that 14 singing species belonging to six families of Orthoptera had been sold as pets in Tokyo's market. A list of these species is as follows:

Family Tettigoniidae

Gampsocleis mikado Burr, 1899 (abbreviation in Tables 1-4: *G. m.*)

Hexacentrus japonicus Karny, 1907 (*H. j.*) (see annotation (1) after this list)

Pseudorhynchus japonicus Shiraki, 1930 (*P. j.*) (see (2))

Family Mecopodidae

Mecopoda niponensis (de Haan, 1843) (*M. n.*)

Family Gryllidae

Velarifictorus micado (Saussure, 1877) (*V. m.*)

Teleogryllus emma (Ohmachi & Matsuura, 1951) (*T. m.*)

Family Mogoplistidae

Ornebius kanetataki (Matsumura, 1904) (*O. k.*)

Family Eneopteridae

Meloimorpha japonica (de Haan, 1844) (*M. j.*)

Oecanthus longicauda Matsumura, 1904 (*O. l.*)

Truljalia hibinonis (Matsumura, 1917) (*T. h.*)

Xenogryllus marmoratus marmoratus (de Haan, 1844) (*X. m.*)

Family Trigonidiidae

Homoeoxipha obliterata (Caudell, 1927) (*H. o.*) (see (3))

Natula matsuurai Sugimoto, 2001 (*N. m.*)

Svistella bifasciata (Shiraki, 1913) (*S. b.*)

Orthoptera for sale as pets consisted of both those bred in the wild and in captivity. At the end of May each year, insects bred in captivity came onto the market. As summer neared, wild insects collected in the Tokyo suburbs were added to the market (Wakatsuki, 1911⁷; Y. 5. 6. 1920). During August, a festival month in Japan, many singing Orthoptera were sold at festival stalls. For example, from July to September of 1913, wholesale dealers shipped 40 million insects to the market, and their total sales reached about U.S. \$2 million (T. 21. 7. 1913).

There were only a few wholesale dealers of singing Orthoptera in Tokyo. In addition, there were not that many breeders. Therefore, the prices of insects tended to rise suddenly when one agency failed to breed them (M. 3. 8. 1907).

A single seller at a stall could earn about U.S. \$200 per day. However, selling insects seemed not to have been lucrative as many died while conducting business (M. 3. 8. 1907). In contrast, collecting wild singing Orthoptera was temporary but provided a good daily income. For instance, the daily pay of a collector of wild Orthoptera was at most about U.S. \$50 in 1907 (M. 3. 8. 1907). This amount was nearly equal to the daily pay of a house builder, which was a relatively profitable job in those days (Morinaga, 2008)¹³.

Most stalls selling live Orthoptera sold insect cages as well. The prices of these cages varied extremely. Simple cages for children only cost about U.S. \$4 (T. 31. 5. 1903). On the other hand, special artistic cages were sometimes priced at U.S. \$850. Few customers could buy such high-class products (Y. 30. 7. 1925).

(1) According to the present classification system, two species of the genus *Hexacentrus*, *H. japonicus* Karny, 1907 and *H. hareyamai* Furukawa, 1941, have been known to occur around Tokyo (Ichikawa et al., 2006)¹⁰. It is possible that both species were mixed and sold in the old market.

(2) One of the 14 species is *Yama-higurashi*, which means "an insect in twilight in mountains," but is unidentifiable. There are several views on the real identity of *Yama-higurashi*. In this study, I identify *Yama-higurashi* as *Pseudorhynchus japonicus* in accordance with Abe (2013)¹¹.

(3) One of the 14 species is *Yamato-suzu*, which means a "Japanese bell cricket." However, the Japanese name *Yamato-suzu* is not currently used, so I could not identify the cricket. Kano (2011)¹² pointed out the possibility that the old *Yamato-suzu* was suitable for an actual *Homoeoxipha obliterata*. In this study, I follow the hypothesis offered by Kano (2011)¹².

Tables 1 and 2 display the annual original prices of singing Orthoptera and in Tables 3 and 4 the prices are converted to present-day U.S. dollars. Moreover, as a comparison, these tables include the prices from two contemporary Japanese shops (A and B) from 2016 that specialize in singing Orthoptera.

The price of a popular cheap lunch, *soba* (buckwheat noodles), ranged from U.S. \$1–3 in the modern monarchical days (Morinaga, 2008)¹³. Most singing Orthoptera were not expensive for common people, though some species were considered luxury goods (see Tables 3 and 4). People bought living insects at stalls and enjoyed listening to the sounds they made at home. Those who bought singing Orthoptera also included the upper class. For example, Mr. Shigenobu Ôkuma (the prime minister) and Mr. Danjûrô Ichikawa (a very famous *kabuki* actor) were known to enjoy singing insects (Y. 30. 6. 1901). Furthermore, one of the first breeders of *Trujalia hibinonis* (Matsumura, 1917) in Tokyo was not a professional seller of insects but Duke Shimazu (Y. 15. 7. 1928).

In Japan, the most popular species of singing Orthoptera included *M. japonica*, *Teleogryllus emma*, *Xenogryllus marmoratus marmoratus*, *Oecanthus longicauda*, and *Gampsocleis mikado*. The most popular cricket, *M. japonica* (Figure 1), has a Japanese name, *suzu-mushi*, which means a “bell insect.”

As shown in Table 4, the price of *M. japonica* was the cheapest and most stable among the 14 species of singing Orthoptera, probably owing to the longstanding farming technology of *M. japonica*. It is very easy to breed this species because *M. japonica* eats common vegetables (such as eggplants and cucumbers) and lays eggs in the soil. Furthermore, it does not take much time or effort to manage hibernating eggs.

Sellers of singing Orthoptera sometimes found *M. japonica* that were more extraordinary than normal ones. In insect stalls, they called such *M. japonica* “bells in the moonlight” or “dewdrops in the moonlight” or “bell-like sounds from a far-away temple” (T. 16. 6. 1901; T. 8. 6. 1902) and sold them at a high price: U.S. \$18.7 in 1902 (Table 4).

T. emma (Fig. 2) was also a relatively cheap cricket (Table 3), but was less popular than *M. japonica*. However, even amateurs could breed *T. emma* as *M. japonica*, and it was very easy to collect wild ones. *T. emma* was a standard singing pet for a long time.

Both *M. japonica* and *X. marmoratus marmoratus* (Fig. 3), a popular singing cricket, are mentioned in *waka* and *haiku*, which are traditional Japanese short-form poems. The breeding of *X. marmoratus marmoratus* is not generally difficult, but contemporary species lay eggs in the stems of dead grass, unlike *M. japonica*. In addition, some techniques for controlling the humidity of hibernating eggs are necessary. *X. marmoratus marmoratus* seemed to generally be a little more expensive than *M. japonica* (Table 4).

O. longicauda was called the “queen of singing insets” (ironically, only the males sing, as do other Orthoptera). Most singing Japanese Orthoptera emit high-pitched sounds, but *O. longicauda* has a low tone, which goes “ru ru ru ru ru” (refrain). *O. longicauda* is still very popular among singing Orthoptera today. However, it is very difficult to breed *O. longicauda*. The contemporary species is omnivorous, but tends to be rather carnivorous. Breeders must feed them live aphids or special artificial food made for birds (Ono & Ogasawara, 1969¹⁴; Goto, 2016¹⁵). Moreover, *O. longicauda* lays eggs on the stems of live plants. Breeding this species is costly and challenging. Furthermore, it is relatively difficult to collect wild specimens. *O. longicauda* has always been highly traded and in high demand (Table 4).

G. mikado (Fig. 4) cannot be called a good singer in comparison with *M. japonica*, *T. emma*, *X. marmoratus marmoratus*, and *O. longicauda*. *G. mikado* is a common katydid that inhabits grasslands with which Japanese are well acquainted. *G. mikado* tends to be very carnivorous like *O. longicauda*. The modern species has a violent temper and these insects often cannibalize each other in cages. *G. mikado* is not fit for mass artificial breeding. Most *G. mikado* on sale in the market were not bred, but collected in the grasslands of the dry riverbeds around Tokyo (M. 3. 8. 1907; T. 21. 7. 1913). The sales price of *G. mikado* fluctuated drastically from year to year (Table 3). One reason is possibly that the commodity supply of *G. mikado* depended on wild populations.

Tab. 1: The annual original prices of singing Orthoptera (I).

Tab. 1: Ceny chovných Orthopter vo originálnych valutech (I).

Year	Tettigoniidae		Mecopodidae		Gryllidae		Mogoplistidae	Authority
	<i>G. m.</i>	<i>H. j.</i>	<i>P. j.</i>	<i>M. n.</i>	<i>V. m.</i>	<i>T. m.</i>	<i>O. k.</i>	
1886	12-13			4-5				Y. 13. 6.
1888	1.3-2					8.7-10.7		T. 10. 7.
1889	12			10		10		T. 15. 6.
1890	1			1		3.5	4.5	T. 26. 6.
1892	10			8		3		Y. 26. 6.
1897	12	12		12		6	10	T. 22. 6.
1900	15			10		8		T. 25. 5.
1901	15	15		15		5	12	Y. 30. 6.
1902				5-8	5-10			T. 8. 6.
1903	0.5-20	1.5-4	1.5-4	15				T. 31. 5.
1904	11			8.5-9.5	3-5		8.5-9.5	T. 22. 6.
1906				18		10		T. 22. 5.
1907	20			18		5	15	M. 28. 5.
1909	3			8		4		M. 26. 8.
1911	25			20		6-7	10	Wakatsuki (1911)
1913		25		20			15	T. 21. 7.
1917	25			18	5		8	U. 19. 6.
1918	25	30		25			15	Y. 17. 5.
1919	7-8			15		7-8		C. 27. 6.
1920	35-40			30		15	30	Y. 5. 6.
1921				20	35-40	15	20	Y. 7. 5.
1922	13-14			10				Y. 3. 6.
1924	40	50		40	15			Y. 11. 7.
1925	20							Y. 30. 7.
1926	15	50		50		20	40	Y. 22. 7.
1927	50	40		40		20	70	Shiraki (1927)
1928	40	45		40	50		40	Y. 1. 7.
1929				10		5	15	Nakabayashi (1930)
1930	50	40		40		20	40	Y. 16. 6.
1931	10-15	20		25		15	40	M. 20. 7.
1934	20			35		50	40	M. 1. 8.
1935	40-50	35-50		35	20		30-50	Y. 3. 8.
1937	30-35			30-35		30-35		T. 6. 7.
1941	45			65				Y. 26. 7.
2016	\ 1000		\ 1000	\ 1000		\ 500	\ 500	insect shop A
2016	\ 850	\ 800		\ 850	\ 480	\ 390	\ 490	insect shop B

G. m., *H. j.*, and so on are abbreviations of specific names. See text in results.

Currency is Japanese sen, except for prices in 2016 indicated in Japanese yen (\).

In authority, Y, T, M, C, U are abbreviations of newspapers. See text in materials and methods.

In authority, years publishing newspaper articles are omitted. See year in the leftmost column.

Tab. 2: The annual original prices of singing Orthoptera (II).**Tab. 2:** Ceny chovných Orthopter vo originálnych valutech (II).

Year	Eneopteridae				Trigonidiidae			Authority
	<i>M. j.</i>	<i>O. l.</i>	<i>T. h.</i>	<i>X. m.</i>	<i>H. o.</i>	<i>N. m.</i>	<i>S. b.</i>	
1886	4-5	12-13		4-5			12-13	Y. 13. 6.
1888	2.5-3	15		3-4			15	T. 10. 7.
1889	3	12		5			12	T. 15. 6.
1890	3.5	12		3		3.5	12	T. 26. 6.
1892	4	12		5			11	Y. 26. 6.
1897	4	12.5		5	12.5	12.5	12.5	T. 22. 6.
1900	5	15		7			15	T. 25. 5.
1901	4	18		6	12		15	Y. 30. 6.
1902	7-28			5-10				T. 8. 6
1903	4			5		10	16-17	T. 31. 5.
1904	3.5	11		4.5			8.5-9.5	T. 22. 6.
1906	6	30		7			25	T. 22. 5.
1907	5	25		8	15	15	16	M. 28. 5.
1909	5	20		8			15	M. 26. 8.
1911	6-7	20-25		10	25		15-20	Wakatsuki (1911)
1913	5	25		7	18		20	T. 21. 7.
1917	5	25		7	16	15	18	U. 19. 6.
1918	6	30		8			25	Y. 17. 5.
1919	7-8	20-25		7-8			20	C. 27. 6.
1920	15	35-40		15		30	30	Y. 5. 6.
1921	15	35-40		15		20	20	Y. 7. 5.
1922	10	50-60		10-15			20	Y. 3. 6.
1924	15		100	20	30	40		Y. 11. 7.
1925	10	50		15		30	30	Y. 30. 7.
1926	15	80		20	40	40	40	Y. 22. 7.
1927	10-15	65-70	70	20	40-50	40-50	40-50	Shiraki (1927)
1928	12.5	80	130	15		50	50	Y. 1. 7.
1929	5	25	40	5	15		15	Nakabayashi (1930)
1930	15	70		20	40		50	Y. 16. 6.
1931	10-15		50	10-15	40		30	M. 20. 7.
1934	8	70		15	40		40	M. 1. 8
1935	10-20		50	15			35	Y. 3. 8
1937	10	60-70		15	30-35	30-35		T. 6. 7.
1941	20			30			70	Y. 26. 7.
2016	\ 250	\ 1000	\ 1000	\ 750	\ 1500	\ 900	\ 900	insect shop A
2016	\ 160	\ 750		\ 440	\ 440	\ 490	\ 480	insect shop B

M. j., *O. l.*, and so on are abbreviations of specific names. See text in results.

Currency is Japanese sen, except for prices in 2016 indicated in Japanese yen (¥).

In authority, Y, T, M, C, U are abbreviations of newspapers. See text in materials and methods.

In authority, years publishing newspaper articles are omitted. See year in the leftmost column.

Tab. 3: The annual prices of singing Orthoptera converted to the present USD (I).

Tab. 3: Ceny chovnych Orthopter prevedenych do dnesnich amerikanskih dolarov (I).

Year	Tettigoniidae			Mecopodidae	Gryllidae		Mogoplistidae
	<i>G. m.</i>	<i>H. j.</i>	<i>P. j.</i>	<i>M. n.</i>	<i>V. m.</i>	<i>T. m.</i>	<i>O. k.</i>
1886	8-8.7			2.7-3.3			
1888	2-3					13-16	
1889	12			10		10	
1890	1			1		3.5	4.5
1892	6.7			5.3		2	
1897	12	12		12		6	10
1900	10			6.7		5.3	
1901	10	10		10		3.3	8
1902				3.3-5.3	3.3-6.7		
1903	0.3	1-2.7	1-2.7	10			
1904	7.3			5.7-6.3	2.3		5.7-6.3
1906				9		5	
1907	10			9		2.5	7.5
1909	1.5			4		2	
1911	12.5			10		3-3.5	5
1913		12.5		10			7.5
1917	12.5			9	2.5		4
1918	12.5	15		12.5			7.5
1919	3.5-4			7.5		3.5-4	
1920	11.7-13.3			10		5	10
1921				5	8.8-10	3.8	5
1922	3.3-3.5			2.5			
1924	13.3	16.7		13.3	5		
1925	6.7						
1926	5	16.7		16.7		6.7	13.3
1927	16.7	13.3		13.3		6.7	23.3
1928	13.3	15		13.3	16.7		13.3
1929				3.3		1.7	5
1930	16.7	13.3		13.3		6.7	13.3
1931	3.3-5	6.7		8.3		5	13.3
1934	6.7			11.7		16.7	13.3
1935	13.3-16.7	11.7-16.7		11.7	6.7		10-16.7
1937	10-11.7			10-11.7		10-11.7	
1941	11.3			16.3			
2016	8.3		8.3	8.3		4.2	4.2
2016	7.1	6.7		7.1	4	3.3	4.1

G. m., *H. j.*, and so on are abbreviations of specific names. See text in results.
Currency is U. S. dollar.

Tab. 4: The annual prices of singing Orthoptera converted to the present USD (II).

Tab. 4: Ceny chovnych Orthopter prevedenych do dnesnich amerikanskih dolarov (II).

Year	Eneopteridae				Trigonidiidae		
	<i>M. j.</i>	<i>O. l.</i>	<i>T. h.</i>	<i>X. m.</i>	<i>H. o.</i>	<i>N. m.</i>	<i>S. b.</i>
1886	2.7-3.3	8-8.7		2.7-3.3			8-8.7
1888	0.83-2	10		2-2.7			10
1889	3	12		5			12
1890	3.5	12		3		3.5	12
1892	2.7	8		3.3			7.3
1897	4	12.5		5	12.5	12.5	12.5
1900	3.3	10		4.7			10
1901	2.7	12		4	8		10
1902	4.7-18.7			3.3-6.7			
1903	2.7			3.3		6.7	10.7-11.3
1904	2.3	7.3		3			5.7-6.3
1906	3	15		3.5			12.5
1907	2.5	12.5		4	7.5	7.5	8
1909	2.5	10		4			7.5
1911	3-3.5	10-12.5		5	12.5		7.5-10
1913	2.5	12.5		3.5	9		10
1917	2.5	12.5		3.5	8	7.5	9
1918	3	15		4			12.5
1919	3.5-4	10-12.5		3.5-4			10
1920	5	11.7-13.3		5		10	10
1921	3.8	8.8-10		3.8		5	5
1922	2.5	12.5-15		2.5-3.8			5
1924	5		33	6.7	10	13.3	
1925	3.3	16.7		5		10	10
1926	5	26.7		6.7	13.3	13.3	13.3
1927	3.3-5	21.7-23.3	23	6.7	13.3-16.7	13.3-16.7	13.3-16.7
1928	4.2	26.7	43	5		16.7	16.7
1929	1.7	8.3	13	1.7	5		5
1930	5	23.3		6.7	13.3		16.7
1931	3.3-5		17	3.3-5	13.3		10
1934	2.7	23.3		5	13.3		13.3
1935	3.3-6.7		17	5			11.7
1937	3.3	20-23.3		5	10-11.7	10-11.7	
1941	5			7.5			17.5
2016	2.1	8.3	8.3	6.3	12.5	7.5	7.5
2016	1.3	6.3		3.7	3.7	4.1	4

M. j., *O. l.*, and so on are abbreviations of specific names. See text in results.
Currency is U. S. dollar.

Truljalia hibinonis is an introduced species and seems to have invaded Japan from China in the first half of the modern monarchical days (Murai & Ito, 2011)¹⁶. The present species was most likely a new insect for ordinary people at the time. *T. hibinonis* was often highly traded in the market. For example, it was priced at U.S. \$43.3 in 1928 and is sold at a moderate price today (Table 4), although it is a common species in urban areas. *T. hibinonis* is still far from cheap because collecting it is relatively difficult as it inhabits the high branches of roadside trees.



Fig. 1: *Meloimorpha japonica* (de Haan, 1844), photographed by Kohei Watanabe.

Obr. 1: *Meloimorpha japonica* (de Haan, 1844), fotografija Kohei Watanabe.



Fig. 2: *Teleogryllus emma* (Ohmachi & Matsuura, 1951), photographed by author.

Obr. 2: *Teleogryllus emma* (Ohmachi & Matsuura, 1951), fotografije avtora.



Fig. 3: *Xenogryllus marmoratus marmoratus* (de Haan, 1844), photographed by Kohei Watanabe.

Obr. 3: *Xenogryllus marmoratus marmoratus* (de Haan, 1844), fotografija Kohei Watanabe.



Fig. 4: *Gampsocleis mikado* Burr, 1899, photographed by Shinnya Umemura.

Obr. 4: *Gampsocleis mikado* Burr, 1899, fotografija Shinnya Umemura.

3.2 Other Domestic Uses of Singing Orthoptera

In the modern monarchical period, many newspaper articles about singing Orthoptera reported their prices on the market and published breeding manuals. However, they covered other topics as well.

3.2.1 Singing Orthoptera displayed in a pavilion

From March 20 to July 31 of 1914, *Taisho* Exhibition was under the sponsorship of Tokyo Prefecture. The exhibition was always crowded, with the total number of visitors reaching about 7,500,000 (Shiina, 1986)¹⁷. In the exhibition, a pavilion specializing in singing Orthoptera was built. About four hundred *M. japonica*, *T. emma*, *X. marmoratus marmoratus*, and other species were displayed, and visitors enjoyed the sounds they made (T. 24. 6. 1914).

3.2.2 Exported singing Orthoptera

The first major Japanese airport, Haneda Airport (now called Tokyo International Airport), opened in Haneda, Tokyo on August 25, 1931. On the same day, the first airplane flew to Dalian City on the Liaotung Peninsula in China, which was a Japanese territory at the time, without travellers (Kinumoto, 2010).¹⁸ The airplane shipped about 6,000 *M. japonica* and *X. marmoratus marmoratus* to make a delivery to a cafe (T. 26. 8. 1931). Surprisingly, the first travellers to depart Tokyo International Airport were not humans but singing crickets.

In addition, there is a record that the Japanese Acting Minister to Mexico, Kumaichi Horiguchi, ordered eggs of the species *M. japonica* from Japan. He planned to breed them and expose Mexicans to the sounds they made (Y. 21. 6. 1915). This case might be one example in which a singing cricket was used as a tool of diplomacy.

3.2.3 Sounds of singing Orthoptera broadcast live by a radio station

Japanese radio broadcasting began on March 22, 1925 (Takeyama, 2002)¹⁹. In the mid-1930s, radio stations often broadcasted live wild animals on the spot. The animals that provided sounds included the Kajika frog, *Buergeria buergeri* (Temminck & Schlegel, 1838) and two cricket species: *M. japonica* and *O. longicauda*. *M. japonica* were broadcast live from Sendai City on the night September 25, 1935, September 5, 1936, and September 8, 1937 (T. 25. 9. 1935; T. 5. 9. 1936; T. 8. 9. 1937). *O. longicauda* were broadcast from Mt. Ikoma, Nara on the night of September 5, 1936 (T. 5. 9. 1936).

3.2.4 Singing Orthoptera released for purposes of appreciation and religious ceremonies in gardens and shrines

There are some records that indicate that singing Orthoptera were released in gardens and at shrines for purposes of appreciation and religious rituals. In a famous Tokyo flower garden, Mukôjima Hyakka-en, many singing Orthoptera were released for visitors at a summer festival. Because many visitors came to the festival to enjoy the insects' sounds, a sponsor arranged for a steam ship to transport them (M. 7. 8. 1921). On another occasion, prominent figures in politics and business assembled at an autumn festival on a day that the insects were released (Y. 17. 9. 1907).

A religious ceremony in relation to *Gampsocleis mikado*, *Mecopoda niponensis*, *M. japonica*, and other species began at Meiji Shrine, Tokyo, in 1927. Some young men's associations around Tokyo collected these wild insects, dedicated them to a god, and shortly afterward released them to areas in the Meiji Shrine (T. 29. 7. 1927).

4 CONCLUSION

Since 1868, during the modern monarchical days after the Edo Period, Japanese political and military systems became Westernized. During that time, many traditional cultures and customs from the Edo Period were inherited, including the practice of admiring singing Orthoptera. Many singing crickets and katydids were sold as pets at festival stalls, as well as during the Edo Period. They were actively released in gardens and at shrines so that people could enjoy the sounds they made.

After World War II, the defeated Japanese Empire was forced to democratize, mainly by the U.S., and became an economic power. Consequently, many traditional customs were lost as economic growth progressed. The population of wild Orthoptera rapidly decreased in suburban areas due to environmental degradation. Furthermore, in contemporary Japan, singing Orthoptera on sale at normal pet shops only consist of *M. japonica* from the family Eneopteridae, except for specialist insect shops, as exhibited by Shops A and B in Tables 3 and 4. The main insects that Japanese keep as pets today are mainly domestic or foreign rhinoceros and stag beetles. The tradition of admiring singing insects has seemingly disappeared among the Japanese people.

Singing Orthoptera have been written about in *waka* and *haiku*, even in contemporary times. Japanese children learn a song called the “Sounds of Insects” in elementary school. The lyrics go: “Ah, *Xenogryllus marmoratus marmoratus* are singing now!” Almost all Japanese people (including the author) can sing the “Sounds of Insects” even after they grow up. The practice of admiring singing Orthoptera remains rooted in the Japanese society.

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