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A survey of *Aedes albopictus* (Diptera: Culicidae) distribution in Slovenia in 2007 and 2010

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Abstract. Spreading of the invasive mosquito species *Aedes albopictus* in the southwestern part of Slovenia was studied in 2007 and 2010. The study was based on larval and adults search. Mosquito larvae were sampled with a dipper or a net from various artificial containers and the adults caught by human bait catches for 15 minutes. In 2007, the research was carried out in 64 municipalities, where 327 larval habitats were examined. *Ae. albopictus* was observed in 52 municipalities. Mosquito larvae were most often collected in small containers placed in shady areas. All the adults were caught near breeding sites. The species was found in most of the studied areas in south-western Slovenia, especially in its coastal part and near Nova Gorica. In 2010, a research was implemented in 12 municipalities that had proved negative for *Ae. albopictus* in 2007. The incidence of *Ae. albopictus* was surveyed in 100 larval habitats. The presence of *Ae. albopictus* was confirmed in almost all of the municipalities, which is an indicator of its firm establishment in the studied area.

Key words: *Aedes albopictus*, distribution, southwestern Slovenia

Izvleček. PREGLED RAZŠIRJENOSTI TIGRASTEGA KOMARJA *AEDES ALBOPICTUS* (DIPTERA: CULICIDAE) V SLOVENIJI V LETIH 2007 IN 2010 – Razširjenost tigrastega komarja *Aedes albopictus* v JZ delu Slovenije smo preučevali v letih 2007 in 2010 na podlagi pojavljanja ličink ter odraslih osebkov. Ličinke smo vzorčili po različnih habitatih s posodico ali mrežico, odrasle komarje pa smo lovili z metodo človek – aspirator 15 minut. V letu 2007 smo pregledali 327 različnih habitatov ličink v 64 naseljih. Tigrastega komarja smo zabeležili v 52 naseljih. Komarjeve ličinke smo najpogosteje našli v manjših, osenčenih habitatih, odrasle osebke pa ob leteh. Kot smo pričakovali, je bila gostota komarja v priobalnem pasu velika, a se je v velikem številu pojavljal tudi v preostalem delu JZ Slovenije, predvsem na Goriškem. Leta 2010 smo v raziskavo vključili 12 naselij, v katerih leta 2007 tigrasti komar ni bil potrjen. Skupno smo v letu 2010 pregledali 101 habitat ličink. Tigrastega komarja smo potrdili v skoraj vseh preiskanih naseljih, kar kaže na vzpostavitev stabilne populacije vrste na preiskovanem območju.

Ključne besede: *Aedes albopictus*, razširjenost, jugozahodna Slovenija

Introduction

The Asian tiger mosquito *Aedes albopictus* (Skuse, 1895) is an invasive mosquito species that originates from tropical and subtropical Asia (Hawley 1988). In just over three decades it has spread to North and South America, the Caribbean, Africa, Southern Europe and some Pacific islands (Knudsen 1995). The spreading is mediated by human activity, as this species has a limited flight range (Hawley 1988). The transport of drought and cold resistant eggs in used tires via air and sea transport played a major role in its spreading. When the tires are shipped and rehydrated again, the eggs can hatch within hours and in a few days adult mosquitoes emerge and disperse (Knudsen 1995). Additionally, transport of its eggs and larvae within the canes of »Lucky bamboo« (*Dracaena* sp.) (Madon et al. 2003, Scholte et al. 2007) and transport of the adults by vehicles is occurring (Flacio et al. 2004, Pluskota et al. 2008).

In its native zone, *Ae. albopictus* is a common species in urban, suburban, rural and forested areas. The tropical environment enables this species to breed all year round (Hawley 1988). In the temperate zone, the distribution of *Ae. albopictus* is limited to urban areas where at least some vegetation is present (Mitchell 1995). The abilities to colonize artificial containers and to produce dormant eggs enable the species to establish under temperate climate.

Adult females of *Ae. albopictus* represent a high nuisance for the human population as they are aggressive biters that feed mainly during daytime, unlike most other mosquito species in urban environment (Hawley 1988). More significantly, *Ae. albopictus* has a high medical importance, since it is an effective vector of dengue and chikungunya viruses (Mitchell 1995). The last epidemic of dengue in Europe was in Greece in 1927 to 1928 (Rosen 1986). In 2010, autochthonous transmission of dengue infection was noticed in two European countries, France (La Ruche et al. 2010) and Croatia (Gjenero-Margan et al. 2011). Apart from the recent outbreaks in the tropics (Gratz 2004, Paquet et al. 2006), there was an outbreak of chikungunya in Italy in 2007 (Angelini et al. 2007). These data indicate that, with the presence of the vector in the area, there is a big chance of new dengue and chikungunya outbreaks in Europe. Additionally the species' role in the transmission of *Dirofilaria* spp. in urban environments of Asia, North America and Europe has been confirmed (Konishi 1989, Nayar & Knight 1999, Cancrini et al. 2003).

The first record of *Ae. albopictus* in Europe was made in Albania in 1979 (Adhami & Murati 1987). The first infestation in Italy was reported from the Port of Genoa in 1990, where it was introduced in a shipment of used tires from the United States (Sabatini et al. 1990) and since then it has reached a homogenous population in almost all of the Italian regions. After the discovery in Italy, several other European countries reported the presence of *Ae. albopictus*, i.e. France, Belgium, Montenegro, Greece, Switzerland, Spain, Croatia, Bosnia and Herzegovina, The Netherlands, Monaco, Germany, San Marino, Vatican City (ECDC 2009). The most recent introduction was in Malta in 2009 (Gatt et al. 2009).

The first record of *Ae. albopictus* in Slovenia was published in 2002, where a few adults were spotted near Nova Gorica (Turel 2002). In the following years, its population and distribution increased, but the data on its geographical distribution and spreading in the region has been scarce, mainly due to the lack of experts of the Culicidae family in Slovenia. Only a few studies of this dipteran family have been carried out so far (Trpiš & Tovornik 1958, Tovornik 1983, Adamović & Paulus 1988, Tovornik 1990), mostly in the central and southeastern parts of Slovenia, mainly involving anopheline mosquitoes.

Material and methods

In order to obtain more data on *Aedes albopictus* in Slovenia, a study on its distribution was done in 2007. The study was focused on the southwestern part of the country where, according to predicted routes of its spreading in this part of Europe, the species was most likely to occur. Additionally, we tried to determine the eastern and northern border of its distribution. In 2010, the distribution of *Ae. albopictus* was studied again.

In the Northern part of Italy (44°- 46° N), the first eggs of mosquito larvae hatch in April and the adults die off in November (Romi 2001). Its population is highest between 15th August and 15th September (Bellini et al. 2005). We assumed that the seasonal activity of *Ae. albopictus* is similar in Slovenia and therefore all the field work has been carried out when it was most likely for *Ae. albopictus* to be caught. The sampling was done from 9th July to 8th October 2007 and from 21st July to 30th September 2010.

The study in 2007 was performed in several municipalities, which were chosen in a way that all of the area was inspected more or less evenly, whereas the coastal part was studied more accurately. The field work was carried out every month during the three months sampling. If the Asian tiger mosquito was caught already during the first sampling, no additional sampling was made in that municipality. Therefore, minimum one and maximum three samplings were done per municipality. In the repeated samplings in a municipality, the larval habitats from previous inspections were included, as well as new ones added to the study. In 2010, the study was done in the municipalities, where *Ae. albopictus* had not been recorded in 2007. The aim of this year's sampling was to inspect all larval habitats from the previous study, as well as new ones, which weren't present in 2007.

The study of the distribution of Asian tiger mosquito was based on searching for its larvae and adults. Mosquito larvae were sampled with a dipper or a small net of 10 cm in diameter from any artificial container, which contained at least some water. Larval habitats such as barrels, vessels, vases, old bath tubs, small water pools, watering cans, sinks, flower pots and other water-containing objects were included in the study. In the major cities in the area, old tires of local vulcanizing companies were also inspected for mosquito larvae.

All sampled larvae were stored in 50% alcohol immediately after fieldwork. The mounting of fourth instar larvae on glass slides was made by immersing the larvae in a series of alcohol solutions (50%, 70% and 96%), xylene and embedding it in Canada balsam (Furman & Catts

1982). After the preparation, morphological identification was made based on available keys (Gutsevich et al. 1974, Schaffner et al. 2001, Becker et al. 2003).

Adult specimens were collected in a range of maximum 50 meters from the breeding sites by human bait catches for 15 minutes during daytime, between 8 am and 8 pm. By this method, the investigator collects all mosquitoes that land in front of his body during 15 minutes (Service 1993). All adult mosquitoes were killed using temperatures higher than 30°C, placed on the sun during the field work, or with the temperatures below 0°C in a freezer if killed after the field work. After the identification with the keys (Gutsevich et al. 1974, Schaffner et al. 2001, Becker et al. 2003) they were glued to cardboard and then pinned to entomological needles. All mounted mosquitoes are stored in the entomological collection of the Slovenian Museum of Natural History. Additionally, the data on observed adult Asian tiger mosquitoes that weren't caught were included in the study, as the staff who performed field observations was experienced enough to identify with high accuracy the female that landed onto his body.

Results

A total of 61 municipalities from the southwestern part of Slovenia were included in the study of 2007. After the discovery of this invasive species in Ljubljana, its presence was verified additionally in Postojna, Laze and Vrhnika. Altogether 327 larval habitats were examined, among which 256 were checked for mosquito larvae once, 55 were checked twice and 15 three times. One larval habitat stands for one container with mosquito larvae. In 2010, the study was done in 12 municipalities, where 101 larval habitats were examined. Only 18 larval habitats were the same as in the 2007 study, as almost all of the old habitats were removed or didn't contain water anymore. From 101 larval habitats, 87 were checked once, 12 twice and one three times.

In 2007, a total of 53 larval habitats were positive for *Aedes albopictus*, whereas in 2010 11 were positive for *Ae. albopictus* (Tabs. 1-2). Larvae of *Ae. albopictus* were most often found in barrels, vessels, vases and old tires, placed in shady areas. A typical habitat is shown on Figure 1. Asian tiger mosquito's larvae were also found in an old bathtub, a basin, a watering can, a flower pot, a discarded toy and a collecting duct. The most interesting finding of *Ae. albopictus* was in a discarded mosquito repellent candle, where rainwater had accumulated.

Among five vulcanizing companies in the area (Ajdovščina, Ilirska Bistrica, Portorož, Kozina, Postojna,), only tires in Portorož were positive for *Ae. albopictus* larvae.

From all the collected mosquito larvae, only fourth instar larvae were mounted and identified. Among 242 mosquito larvae, three other mosquito species, apart from *Ae. albopictus,* were registered: *Culiseta longiareolata*, *Culex pipiens* and *Culex hortensis.*

Table 1. The number of negative larval habitats for *Ae. albopictus*, positive larval habitats with the number of *Ae. albopictus* larvae in brackets, and the number of caught and observed adults of *Ae. albopictus* per municipality in 2007. Municipalities where no *Ae. albopictus* was detected are written in bold.

Tabela 1. Število negativnih habitatov ličink za tigrastega komarja, število pozitivnih habitatov s številom ujetih ličink v oklepaju ter število ujetih in opaženih odraslih osebkov vrste *Ae. albopictus* v letu 2007. Naselja, kjer vrsta *Ae. albopictus* ni bila zabeležena, so napisana s krepko pisavo.

MUNICIPALITY	LARVAE		ADULTS
	Negative larval habitats	Positive larval habitats (Number of caught larvae)	Caught specimens (observed specimens)
Ajdovščina	12	1 (1)	1 (0)
Ankaran	3	0 (0)	8 (0)
Branik	1	3 (9)	0 (1)
Dekani	3	1 (15)	2 (0)
Divača	10	0 (0)	0 (0)
Dobrava	2	2 (26)	2 (0)
Dragonja	3	0 (0)	0 (3)
Dutovlje	7	0 (0)	0 (0)
Fiesa	0	1 (1)	0 (0)
Gažon	3	1 (2)	0 (4)
Hrastovlje	0	1 (1)	1 (0)
Hrvatini	2	0 (0)	1 (0)
Ilirska Bistrica	12	0 (0)	0 (0)
Izola	1	0 (0)	3 (0)
Jagodje	3	4 (22)	1 (0)
Komen	7	0 (0)	1 (0)
Koper	3	3 (15)	4 (3)
Korte	2	1 (2)	0 (4)
Kostanjevica na Krasu	8	1 (1)	1 (0)
Koštabona	5	2 (4)	1 (1)
Kozana	1	0 (0)	2 (0)
Kozina	11	1 (2)	1 (0)
Kubed	10	0 (0)	1 (0)
Laze	6	1 (1)	0 (0)
Ljubljana	1	0 (0)	1 (0)
Lokev	6	0 (0)	0 (0)
Lucija	2	2 (9)	4 (0)
Marezige	4	2 (2)	1 (0)
Markovščina	8	0 (0)	0 (0)
Movraž	4	1 (2)	0 (0)
Nova Gorica	1	1 (1)	0 (2)
Ozeljan	2	1 (1)	1 (0)
Parecag	2	1 (2)	3 (0)
Piran	2	3 (3)	1 (0)
Pivka	8	0 (0)	0 (0)
Pobegi	2	0 (0)	2 (0)
Podgorje	15	0 (0)	0 (0)
Podgrad	9	0 (0)	0 (0)
Pomjan	2	1 (4)	1 (0)
Portorož	2	3 (18)	27 (0)
Postojna	8	0 (0)	0 (0)
Prade	3	1 (3)	0 (1)

MUNICIPALITY	LARVAE		ADULTS
	Negative larval habitats	Positive larval habitats (Number of caught larvae)	Caught specimens (observed specimens)
Pregarje	5	0 (0)	0 (0)
Prvačina	3	0 (0)	2 (3)
Rožna Dolina	0	2 (4)	2 (2)
Seča	3	2 (7)	0 (1)
Sečovlje	1	1 (2)	0 (1)
Selo	10	1 (1)	1 (0)
Senožeče	7	0 (0)	0 (0)
Sežana	13	0 (0)	1 (0)
Sp. Škofije	1	1 (2)	2 (0)
Strunjan	2	2 (3)	1 (0)
Sv. Anton	3	0 (0)	1 (0)
Sv. Peter	1	1 (2)	2 (0)
Šalara	2	0 (0)	2 (0)
Šared	1	1 (1)	3 (0)
Šempeter pri Gorici	1	0 (0)	1 (0)
Šmarje	1	0 (0)	3 (0)
Vanganel	2	0 (0)	1 (0)
Vipava	6	1 (1)	0 (0)
Višnjevik	4	0 (0)	2 (0)
Vrhnika	12	0 (0)	0 (0)
Vrtojba	0	1 (1)	3 (0)
Žusterna	1	1 (4)	4 (0)
Total	**274**	**53 (174)**	**102 (26)**

Table 2. The number of negative larval habitats for *Ae. albopictus*, positive larval habitats with the number of *Ae. albopictus* larvae in brackets, and the number of caught and observed adults of *Ae. albopictus* per municipality in 2010. Municipalities where no *Ae. albopictus* was detected are written in bold.

Tabela 2. Število negativnih habitatov ličink za tigrastega komarja, število pozitivnih habitatov s številom ujetih ličink v oklepaju ter število ujetih in opaženih odraslih osebkov vrste *Ae. albopictus* v letu 2010. Naselja, kjer vrsta *Ae. albopictus* ni bila zabeležena, so napisana s krepko pisavo.

MUNICIPALITY	LARVAE		ADULTS
	Negative larval habitats	Positive larval habitats (Number of caught larvae)	Caught specimens (observed specimens)
Divača	13	2 (16)	0 (1)
Dutovlje	1	1 (6)	0 (3)
Ilirska Bistrica	8	1 (6)	0 (0)
Lokev	9	1 (3)	0 (0)
Markovščina	4	0 (0)	0 (0)
Pivka	11	0 (0)	0 (0)
Podgorje	8	1 (3)	0 (0)
Podgrad	7	0 (0)	0 (0)
Postojna	11	1 (7)	0 (0)
Pregarje	4	0 (0)	0 (0)
Senožeče	7	1 (1)	0 (0)
Vrhnika	7	3 (5)	0 (0)
Total	**90**	**11 (47)**	**0 (4)**

Figure 1. A typical habitat of *Ae. albopictus* larvae (Foto: Katja Kalan)
Slika 1. Habitat, značilen za ličinke *Ae. albopictus* (Foto: Katja Kalan)

All of 102 adults that were caught near the breeding sites in 2007 were *Ae. albopictus*. The highest number of the adults, caught in 15 minutes, was in Portorož (27 individuals) and in Ankaran (8 individuals). The number of the adults at other locations varied from one to three, but most often one mosquito was caught (Tab. 1). No adult mosquitoes were caught in 2010.

In 2007, *Ae. albopictus* was found in 52 of the 64 surveyed municipalities. Maximum three samplings were done per settlement, depending on the occurrence of *Ae. albopictus* during the study. In the first sampling (from 7th July to the first half of the August) *Ae. albopictus* was observed in 37 municipalities, which are mainly located on the coastal area and around Nova Gorica, which is close to Italy. In the second (from the second half of August to the first half of September) and third (from the second half of September to 8th October) samplings, *Ae. albopictus* was caught in 14 municipalities, which are located in the Vipava Valley, in the Karst region and in the surroundings of Koper. Apart from the southwestern part of Slovenia, the Asian tiger mosquito was found in Ljubljana and Laze (Tab. 1, Fig. 2). The northern border of *Ae. albopictus* distribution was determined by the municipalities of Višnjevik, Šempeter pri Gorici, Ajdovščina, Laze and Ljubljana, whereas the eastern border was determined by the municipalities of Kubed, Kozina, Laze and Ljubljana.

The distribution range of *Ae. albopictus* has increased during the last three years, as in 2010 it was found in 8 of 12 municipalities that had been negative in 2007. Only four municipalities were still free of *Ae. albopictus*, i.e. Markovščina, Pregarje, Podgrad and Pivka (Fig. 2).

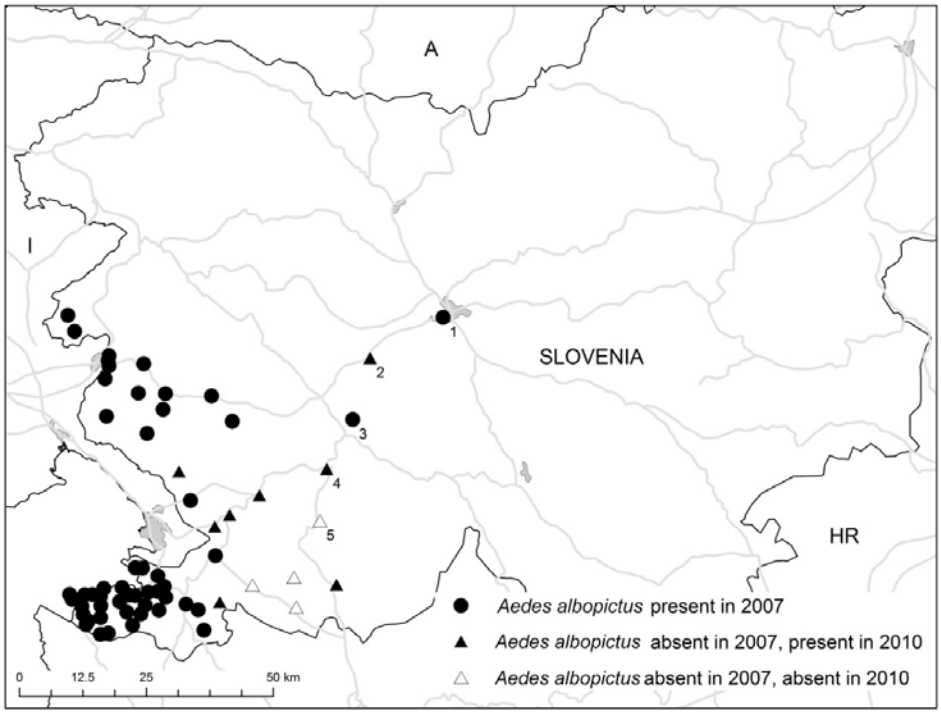

Figure 2. The findings of *Ae. albopictus* in the southwestern part of Slovenia in 2007 and 2010. Black spots indicate municipalities that were positive for *Ae. albopictus in 2010,* black triangles show municipalities that were negative for *Ae. albopictus* in 2007 but positive in 2010, while white triangles indicate municipalities that were negative for *Ae. albopictus* in 2007 and 2010. Ljubljana (1), Vrhnika (2), Laze (3), Postojna (4), Pivka (5).

Slika 2. Najdbe tigrastega komarja *Ae. albopictus* v jugozahodnem delu Slovenije v letih 2007 in 2010. Črne pike prikazujejo naselja, kjer je bil tigrasti komar zabeležen leta 2007 .Črni trikotniki prikazujejo naselja, kjer tigrastega komarja ni bilo leta 2007, a je bil zabeležen leta 2010. Beli trikotniki ponazarjajo naselja, kjer tigrastega komarja nismo našli ne leta 2007 ne leta 2010. Ljubljana (1), Vrhnika (2), Laze (3), Postojna (4), Pivka (5).

Discussion

The distribution of Asian tiger mosquito in the southwestern part of Slovenia was studied in 2007 and 2010. Larvae of this invasive mosquito species were most often sampled from small containers, placed in shady areas, which is a known species characteristic (Hawley 1988). All of the adults caught by human bait catches were *Ae. albopictus*, which is probably due to the fact that the sampling of the adults was done during daytime when species is active unlike most of other mosquito species (Hawley 1988). From the number of caught specimens in 15 minutes it was not possible to determine mosquito's daily biting activity in the studied area, as the sampling was done randomly, during all day while searching for mosquito larvae. Nevertheless, there were two locations where the number of caught adults was relatively high in comparison to other sites. The location in Portorož was near a depot of old tires and the location in Ankaran was near barrels with water. At both sites, Asian tiger

mosquito's larvae were caught as well. These results are only a confirmation that both container types are ideal habitats for Asian tiger mosquito larvae (Hawley 1988). For the comparison of the mosquito's population size between different sites, sampling at a fixed time of the day and in same climatic conditions at all sites should be done.

Our study in 2007 indicated the presence of an established population of Asian tiger mosquito around Nova Gorica and at the coastal part of Slovenia. According to the known distribution paths of *Ae. albopictus* in Southern Europe we assume that the mosquito was brought to this area from Italy by ground transport (ECDC 2009). The spreading of the species to other regions of Slovenia originated from these areas, which is confirmed by the results of the occurrence of the species during the three month's sampling. The first findings were in the area close to Italy, and the mosquito dispersed to other parts during the season. Only one of the five major vulcanizing companies in the studied area was positive for *Ae. albopictus*. Therefore we assume that spreading of the species by ground transport, via highways and regional roads, had a major role in this species spreading.

One of the goals of the study in 2007 was to determine the northern and eastern border of *Ae. albopictus* distribution in Slovenia. After the discovery of *Ae. albopictus* in Ljubljana we knew that this would be hard to achieve. The species was occurring in a much larger part than predicted because of its spreading paths. Therefore we focused on the southwestern part of Slovenia and included three municipalities, i.e. Postojna, Laze and Vrhnika, along the highway to Ljubljana, which was the most likely path of the mosquito spreading in the area (Pluskota 2008). *Ae. albopictus* was found additionally only in Laze. Further study of the species spreading was needed and these municipalities were inspected more accurately in 2010, when presence of Asian tiger mosquito was confirmed in almost all of them.

From 2007 on, the population of *Ae. albopictus* dispersed and the mosquito was present in 2/3 of the studied area in 2010. The absence of mosquito in Markovščina, Podgrad, Pivka and Pregarje is probably due to the absence of introduction or low number of introduced specimens, and to less favorable climatic conditions. It is possible that *Ae. albopictus* had been introduced in the area before but failed to overwinter. Therefore, special stress on the surveillance of the species in this area should be made in further studies. Future studies should include also municipalities like Ilirska Bistrica, Podgorje and Senožeče, where mosquito larvae were caught only in the third sampling in 2010, as well as the sites with only few specimens sampled in 2007. Additionally, all of the country should be included in the monitoring, since the occurrence of *Ae. albopictus* in other parts of Slovenia is unknown, yet possible. Accordingly to the MCDA model, which also includes climate change, almost all of the country will become highly suitable for the establishment of this species, if climate changes are taken into account (ECDC, 2009).

An effective monitoring program of *Ae. albopictus* population is highly needed in Slovenia in order to survey its occurrence in the area and to establish a successful management program. A pilot study is planned for next year in Koper and Nova Gorica. The monitoring will include mosquito sampling with BG-sentinel traps, which have been proven to be very effective in catching *Ae. albopictus* (Meeraus 2008). These traps for adults will be combined with the ovitraps, which have been and still are widely used for the monitoring of *Ae. albopictus*. The monitoring with traps will be expanded throughout Slovenia in subsequent years. Apart from above mentioned pilot study, all of the country will be inspected for *Ae. albopictus* larvae and adults in the next year.

Povzetek

Tigrasti komar *Aedes albopictus* (Skuse, 1894) je primarno tropska in subtropska vrsta komarjev, v zadnjih tridesetih letih pa se je razširil po vsem svetu. V Evropi je bil prvič zabeležen leta 1979 v Albaniji, v Sloveniji pa leta 2002. Primarno vlogo pri njegovem širjenju ima prenos jajčec s transportom starih gum, sekundarno pa prenos ličink in odraslih osebkov. Najbolj pogosti omejujoči dejavniki, ki vplivajo na njegovo razširjenost, so temperatura, dolžina dneva, vlažnost zraka in količina padavin. Kolonizacijo v zmerno toplem klimatskem pasu mu je med drugim omogočil tudi razvoj dormantnih jajčec, odpornih proti izsuševanju in nizkim temperaturam.

O pojavljanju tigrastega komarja v Sloveniji zaradi pomanjkanja strokovnjakov s tega področja ni bilo veliko znanega. Obstajali so samo časopisni članki, ki so večinoma navajali pojavljanje tigrastega komarja v obalnih mestih. Z raziskovalnim delom smo v letu 2007 želeli ugotoviti pojavnost tigrastega komarja v jugozahodni Sloveniji. S tem smo poskušali ugotoviti najbolj severno in vzhodno mejo razširjenosti tigrastega komarja v državi. V letu 2010 smo ga ponovno iskali v naseljih, v katerih ga leta 2007 nismo našli.

Razširjenost tigrastega komarja *Aedes albopictus* v JZ delu Slovenije smo preučevali od 9.7.2007 do 8.10.2007 in od 21.7.2010 do 30.10.2010 na podlagi pojavljanja ličink ter odraslih osebkov. Ličinke smo vzorčili po različnih habitatih s posodico ali mrežico, odrasle komarje pa smo lovili z metodo človek – aspirator 15 minut. V letu 2007 smo pregledali 64 naselij, od tega 327 različnih lokacij. Leta 2010 smo ponovili vzorčenje v 12 naseljih, v katerih tigrastega komarja nismo ujeli leta 2007. V tem letu smo pregledali 101 habitat ličink.

Leta 2007 smo tigrastega komarja zabeležili v 52 naseljih. Gostota komarja je bila v priobalnem pasu velika, a se je v velikem številu pojavljal tudi v preostalem delu JZ Slovenije, predvsem na Goriškem. Leta 2010 smo tigrastega komarja potrdili v skoraj vseh naseljih, kar kaže na hitro širjenje vrste. Neobstoj vrste v Markovščini, Podgradu, Pivki in Pregarjah pripisujemo več dejavnikom. Njenemu pojavljanju v naštetih naseljih velja v prihodnjih raziskavah nameniti posebno pozornost. Poleg tega je treba v prihodnje raziskave vključiti celotno Slovenijo, saj je pojavljanje te invazivne vrste drugje kot v jugozahodnem delu države zelo slabo poznano.

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