News – *Vespa velutina* – Few shot prompting

- You are a data labeller. Your task is to classify digital newspaper news as "YES" or "NO". "Yes" refers to news reporting, directly or indirectly, the geographical occurrences of the Asian hornet, with scientific name Vespa velutina, in a country or subnational region of the world. "NO" refers to news that are generally related to this species, but from which it is not possible to infer a region of occurrence. Importantly, some news could be in languages other than English. Also importantly, some news could refer to other species in an isolated way, which must be classified as "NO" (e.g., Giant Asian Hornet - *Vespa mandarinia* or the oriental hornet – *Vespa orientalis*). In this regard, only news reporting the geographical occurrences and that refer to the 'Asian hornet', 'Vespa velutina', 'Yellow-legged hornet', 'frelon asiatique', 'Азиатская оса', 'calabrone asiatico', 'asiatische hornisse', 'aziatische hoornaar', 'asiatisk hornet', 'asiatisk bålgeting, 'avispa asiática', 'Vespa-asiática', must be classified as "YES". Any news that considers more than one country combined, such as a continent, must be classified as "NO". On the other hand, news that represent a country or a subregion of a country must be classified as "YES".

- Here, in quotes, are some examples of news titles in multiple languages, some of them accompanied by a description of the news (separated by a dash). There are eight positive examples, representing directly or indirectly the geographical occurrence of the species (labelled as YES), and eight negative examples (labelled as NO).

"Vespa-asiática chega aos Estados Unidos": YES

"Invasive hornet species found in the US for the first time - On Aug. 9, the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) confirmed that a non-native hornet species, a yellow-legged hornet, was seen in Georgia ": YES

"Warning as deadly Asian hornets sighted in Plymouth and Kent - sparking fears of an invasion as the summer holidays begin - Experts warned the British public to remain 'vigilant' of invasive Asian hornets. The UK has recorded multiple confirmed sightings of the insects this summer": YES

"On Asian hornet frontline with insect hunters trying to stop swarm making beeline for UK": YES

"Acabar com vespa-asiática em Portugal "vai ser impossível": foram destruídos 17 mil ninhos em 2022 - Duas pessoas morreram, no último mês, após picada de vespa-asiática. É nos meses de Verão que há uma "explosão" destes insectos, mas já foram identificados mais de 2000 ninhos este ano.": YES

"Vespa asiática observada no concelho de Belmonte, Portugal": YES

"Nest einer Asiatischen Hornisse in Basel gefunden und entfernt": YES

"Agricultor hospitalizado por picada de vespa asiática na cidade da Guarda": YES

"Consejos prácticos y útiles para evitar que las avispas se acerquen a la comida durante el verano": NO

"Here's the Latest Invasive Hornet We Need to Worry About": NO

"Africa: Citizen Science Is Key in Helping to Tackle the Threat of Invasive Alien Species": NO

"Martial Arts Superstar Bruce Lee's Legacy Endures 50 Years On": NO

"Bees, Wasps in Japan": NO

"Asiatische Hornisse verschreckt heimische Bienen": NO

"Nest of Asian giant hornet (Vespa mandarinia) in Taiwan": NO

"Scientists predict the potential spread and impacts of Asia hornet - Scientists were able to determine the locations of expansion of the Asian hornet using modelling techniques": NO

Based on this information, classify the below news as "YES" or "NO". If the classification is “YES”, give in the next line the name of the region and, in the following line its geographical coordinates in positive or negative decimal degrees. If there is more than one region for which the species is reported, supply the requested information for each. Supply only these results.

- Here, in quotes, are two complete examples of the classification expected when a news reports the geographical occurrence of the Asian hornet:

“Yes
Madrid
40.4196°, 3.6927°”

“Yes
Madagascar Island
-18.766900°, 46.869100°”

Now, one example for a news listing the species for more than one region:
“Yes

Romania

45.9432°, 24.9668°

Yes

Auvergne-Rhône-Alpes

45.5127°, 4.4905°”

Now, one example expected when a news is not reporting the geographical occurrence of the Asian hornet:

"NO"

Now, we will provide you the news to classify, consisting of the title and the description (when available) (both in quotes, separated by a dash):

News – *Aedes albopictus* – Few shot prompting

- You are a data labeller. Your task is to classify digital newspaper news as "YES" or "NO". "Yes" refers to news reporting, directly or indirectly, the geographical occurrences of the Tiger mosquito, with scientific name Aedes albopictus, in a country or subnational region of the world. "NO" refers to news that are generally related to this species, but from which it is not possible to infer a region of occurrence. Importantly, some news could be in languages other than English. Also importantly, some news could refer to other species in an isolated way, which must be classified as "NO" (e.g., Yellow fever mosquito – *Aedes aegypti*). In this regard, only news reporting the geographical occurrences and that refer to the 'Tiger mosquito, 'Aedes albopictus', 'moustique tigre', 'тигровый комар', 'zanzara tigre', 'asiatische Tigermücke', 'aziatische tijgermug', 'asiatisk tigermygg', 'asiatisk tigermygga', 'Mosquito tigre', must be classified as "YES". Any news that considers more than one country combined, such as a continent, must be classified as "NO". On the other hand, news that represent a country or a subregion of a country must be classified as "YES".

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"Monitoring belegt Ausbreitung der Tigermücke in Stuttgart - Weilimdorf - Meldungen aus der Bevölkerung haben sich nun bestätigt: Die Asiatische Tigermücke ist auch in Stuttgart angekommen. Das städtische Gesundheitsamt bittet die Bürger deshalb um Mithilfe, um eine weitere Ausbreitung zu vermeiden": YES

"Mosquito Tigre identificado na região portuguesa do Algarve pela primeira vez": YES

"Aedes albopictus transmisor del dengue encontrado en la isla de Lampedusa – Las autoridades locales identificaron por primera vez al mosquito tigre en las trampas de las autoridades sanitarias. La situación no representa un peligro inmediato para la población. ": YES

"Huevos de mosquito tigre capturados en Granada. Sin peligro para la población": YES

"Impact of invasive mosquito aedes allbopictus detected in Luxembourg yet to be understood": YES

"How the tiger mosquito invaded Georgia and what can be done to stop it": YES

"Moustique tigre asiatique trouvé dans le canton du Valais, Suisse": YES

"Andalucía con un aumento de la presencia del mosquito tigre asiático": YES

"Investigadores estudian cómo eliminar el mosquito tigre transmisor del dengue": NO

"How to avoid tiger mosquito bites this summer": NO

"Impact of invasive Asian tiger mosquito in human health": NO

"Städtische Gebiete sind die Lieblingsgebiete der Tigermücke": NO

"Dengue outbreak in Egypt remains to be clarified - The dengue outbreak identified last month remains unclear, although authorities suspect the presence of some species that transmits the disease": NO

"Chuvas de verão aumentam presença do mosquito tigre, explica especialista": NO

"Climate change put cities at the mercy of the tiger mosquito that transmits dengue ": NO

"Are the geographical boundaries of the tiger mosquito changing due to globalization? ": NO

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Papers – *Vespa velutina* – Few shot prompting

- You are a data labeller. Your task is to classify digital scientific papers as "YES" or "NO". "Yes" refers to papers reporting, directly or indirectly, the geographical occurrences of the Asian hornet, with scientific name Vespa velutina, in a country or subnational region of the world. "NO" refers to papers that are generally related to this species, but from which it is not possible to infer a region of occurrence. Importantly, some papers could be in languages other than English. Also importantly, some papers could refer to other species in an isolated way, which must be classified as "NO" (e.g., Giant Asian Hornet - *Vespa mandarinia* or the oriental hornet – *Vespa orientalis*). In this regard, only papers reporting the geographical occurrences and that refer to the 'Asian hornet', 'Vespa velutina', 'Yellow-legged hornet', 'frelon asiatique', 'Азиатская оса', 'calabrone asiatico', 'asiatische hornisse', 'aziatische hoornaar', 'asiatisk hornet', 'asiatisk bålgeting, 'avispa asiática', 'Vespa-asiática', must be classified as "YES". Any papers that consider more than one country combined, such as a continent, must be classified as "NO". On the other hand, papers that represent a country or a subregion of a country must be classified as "YES". Please note, papers related to potential distribution/future distributions/habitat modelling must be classified as "NO".

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"First detection of Vespa velutina nigrithorax (Hymenoptera: Vespidae) in the Balearic Islands (Western Mediterranean): a challenging study case": YES

"Détermination de l'impact et suivi de la guêpe asiatique à Nice": YES

"An updated checklist of Asian hornet (Vespa velutina) from Belgium, with new records": YES

"Patterns of Vespa velutina invasion in Portugal using crowdsourced data - The invasive yellow-legged hornet (Vespa velutina) was first detected in mainland Portugal in September 2011. The lack of information regarding the processes of species spread has hampered the development of adequate measures to mitigate the potential impact of this invasive predator. Crowdsourced data, i.e., information opportunistically reported by citizens, can facilitate the collection of numerous species occurrence records over large spatial scales, which can be valuable to understand the expansion of invasive species. Here, using validated

crowdsourced data on the precise location of 49 013 nests, we: (i) update information regarding V. velutina distribution in Portugal; (ii) estimate the species expansion rate; and (iii) analyse the patterns of nests distribution at national and local scales. The species is currently distributed over an area of approximately 57 000 km2, which corresponds to 62% of mainland Portugal. We estimated an average rate of 37.4 ± 13.2 km/year for V. velutina expansion. Vespa velutina nests presented an aggregated distribution and nest density at the urban local-scale was estimated in 5.4 ± 3.3 nests/km2. The observed decrease in the nearest-neighbour nest distance over the years suggests that the density of nests has not reached its limit. We advocate that the development of a cheap and rapid method for nest detection and the study of fine-scale mechanisms leading to V. velutina dispersal are important steps to identify colonisation pathways and plan management approaches aiming to halt species spread and impact in apiaries. ": YES

"Chemical profile from the head of Vespa velutina - Vespa velutina is eusocial insects in which chemical communication is decisive for social interactions. V. velutina was accidentally introduced in 2004 in France and subsequently in northern Spain in 2010. It is an invasive species that severely affects the beekeeping sector. Insect cuticle and head structures had an important role in chemical communication so that this research approaches for the first time chemical compounds extracted from the heads of V. velutina. Chemical compounds were profiled using GC/MS. The main compounds identified were carbohydrates, fatty acids, and hydrocarbons. The chemical profile of Vespa velutina was examined. Chemometric techniques (PCA and LSD) were used to achieve this goal.": YES

"Establishment of the Invasive Hornet Vespa velutina (Hymenoptera: Vespidae) in Japan": YES

"Distribution, spread and impact of the invasive hornet Vespa velutina in South Korea": YES

"Managing incursions of Vespa velutina nigrithorax in the UK: an emerging threat to apiculture - Vespa velutina nigrithorax is an invasive species of hornet accidentally introduced into Europe in 2004. It feeds on invertebrates, including honey bees, and represents a threat to European apiculture. In 2016, the first nest of this hornet was detected and destroyed on mainland UK. A further 8 nests were discovered between 2016 and 2019. Nest dissection was performed on all nests together with microsatellite analyses of different life stages found in the nests to address the reproductive output and success of nests found in the UK. None of the nests had produced the next generation of queens. Follow-up monitoring in those regions detected no new nests in the following years. Diploid males were found in many UK nests, while microsatellite analysis showed that nests had low genetic diversity and the majority of queens had mated with one or two males. All UK nests derived from the European zone of secondary colonisation, rather than from the native range of the species. None of the nests discovered so far have been direct offspring of another UK nest. The

evidence suggests that these nests were separate incursions from a continental population rather than belonging to a single established UK population of this pest. ": YES

"Medical consequences of the Asian hornet (Vespa velutina) in humans": NO

"The economic cost of control of the invasive yellow-legged Asian hornet": NO

"Sistema de repulsão de vespas asiáticas à entrada em colmeias de abelhas": NO

"Searching for nests of the invasive Asian hornet (Vespa velutina) using radio-telemetry": NO

"A New Record of a Hornet (Hymenoptera: Vespidae) from Taiwan - A queen of the hornet Vespa simillima Smith was collected from Tsaoshan Village (950 m in elevation) in Chiayi County, Taiwan. This is a first record of this species from Taiwan and may represent an accidental introduction from other regions. The species is common in the northeastern part of the Palearctic region, constructs large colonies, and has been a serious nuisance pest in Japan. A continuing investigation of the spread and/or decline of this wasp is needed in Taiwan.": NO

"First detection of Asian giant hornet (Vespa mandarinia) in Okinawa Island": NO

"Modelling the Potential Range Expansion of the Invasive Asian Hornet in Europe": NO

"Distribution of Asia giant hornet (Vespa mandarinia) and Asian hornet (Vespa velutina) in China": NO

Based on this information, classify the below papers as "YES" or "NO". If the classification is “YES”, give in the next line the name of the region and, in the following line its geographical coordinates in positive or negative decimal degrees. If there is more than one region for which the species is reported, supply the requested information for each. Supply only these results.

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Papers – *Aedes albopictus* – Few shot prompting

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"First Detection of Aedes (Stegomyia) albopictus (Diptera: Culicidae) in Algiers, the Capital City of Algeria": YES

"First report of the Asian Tiger Mosquito, Aedes (Stegomyia) albopictus (Diptera: Culicidae), in Tunisia": YES

"New Record of Aedes albopictus In a Suburban Area Of Merida, Yucatan, Mexico": YES

"Spread of the Tiger mosquito in Barcelona": YES

"The arrival, establishment and spread of Tiger mosquito (Aedes albopictus) in Italy": YES

"A decade of colonization: the spread of the Asian tiger mosquito in Pennsylvania and implications for disease risk - In recent decades, the Asian tiger mosquito expanded its geographic range throughout the northeastern United States, including Pennsylvania. The establishment of Aedes albopictus in novel areas raises significant public health concerns, since this species is a highly competent vector of several arboviruses, including chikungunya, West Nile, and dengue. In this study, we used geographic information systems (GIS) to examine a decade of colonization by Ae. albopictus throughout Pennsylvania between 2001 and 2010. We examined the spatial and temporal distribution of Ae. albopictus using spatial statistical analysis and examined the risk of dengue virus transmission using a model that captures the probability of transmission. Our findings show that since 2001, the Ae. albopictus population in Pennsylvania has increased, becoming established and expanding in range throughout much of the state. Since 2010, imported cases of dengue fever have been recorded in Pennsylvania. Imported cases of dengue, in combination with summer temperatures conducive for virus transmission, raise the risk of local disease transmission. ": YES

"Introduction, Control, and Spread of Aedes albopictus on Grand Cayman Island": YES

"First Record of Aedes albopictus in Georgia and Updated Checklist of Reported Species - Mosquito surveillance was carried out in Batumi, Georgia, in August 2014. Aedes albopictus was detected for the first time, which brought the number of reported mosquito species in Georgia to 32. An updated checklist of the mosquitoes of Georgia is provided.": YES

"A new tent trap for monitoring the daily activity of Aedes aegypti": NO

"Precipitation and Temperature Effects on Populations of Aedes albopictus (Diptera: Culicidae): Implications for Range Expansion": NO

"The invasive mosquito species Aedes albopictus: current knowledge and future perspectives": NO

"Urbanization Increases Aedes albopictus Larval Habitats and Accelerates Mosquito Development and Survivorship": NO

"Direct Evidence of Adult Aedes albopictus Dispersal by Car": NO

"Gamma Radiation Sterilization Dose of Adult Males in Asian Tiger Mosquito Pupae - The pathogen-carrying tiger mosquito, Aedes albopictus, has spread from the Western Pacific and Southeast Asia to Europe, Africa, the Middle East, North and South America, and the Caribbean. This species of mosquito transmits arboviral infections, such as yellow fever, chikungunya, dengue, zika, and several encephalitides. The objective of this research was to provide a radiation dose inducing sterilization in adult male Ae. albopictus in the pupal stage. A cobalt-60 source of gamma radiation at a dose rate of 381 Gy/h was used. The pupae were irradiated with doses of 0 (control), 20, 30, 40, 50, and 60 Gy. Each treatment had a total

of five replications using 60 pupae. After irradiation, the different phases of Ae. albopictus development (egg, larva, pupa, and adult) in the F1 generation were observed daily. Parameters such as viability, fertility, longevity, and mortality were recorded. The results from these studies showed that a dose of 60 Gy was necessary to sterilize 100% of the male Ae. albopictus pupae.": NO

"Isolation of microsatellite markers in the tiger mosquito Aedes albopictus (Skuse) ": NO

"Optimization of artificial feeding system for mass rearing of the Asian tiger mosquito, Aedes albopictus": NO

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