



Cixius (Sciocixius) armatus Ribaut, 1953: first record from Spain and new data on its ecology and distribution (Hemiptera, Fulgoromorpha, Cixiidae)

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Abstract. - We present new data on the ecology and distribution of *Cixius (Sciocixius) armatus* Ribaut, 1953. Its distribution area is extensively revised with numerous new records and locations from France and the first records from Spain. Ribaut's species description is translated into English, and photos of the habitus, genitalia and the habitat are presented here for the first time.

Résumé. - *Cixius (Sciocixius) armatus* Ribaut, 1953 : **premier signalement d'Espagne et nouvelles données sur son écologie et sa répartition (Hemiptera, Fulgoromorpha, Cixiidae)**. Nous présentons de nouvelles données sur l'écologie et la distribution de *Cixius (Sciocixius) armatus* Ribaut, 1953. Son aire de répartition est largement revue avec de nombreuses nouvelles localités en France mais aussi en Espagne. La description de l'espèce de Ribaut est traduite en anglais et l'habitus, les pièces génitales et certains biotopes de captures sont illustrés.

Keywords. - Endemism, planthoppers, ecology.

The Cixiidae family is the most diverse family of planthoppers, with more than 2600 described species (BOURGOIN, 2025). Their biology is still poorly known; most species are considered polyphagous or oligophagous and can be diurnal or nocturnal (HOLZINGER *et al.*, 2002). The nymphal stages possess subterranean habits, living next to the roots constituting their feeding resource. In Europe, the Cixiid fauna is believed to be mostly known. If this fact is quite true for the central European fauna thanks to many works since the beginning of the 21st century (NICKEL, 2003; HOLZINGER *et al.*, 2003; BIEDERMANN & NIEDRINGHAUS, 2009; DE HAAS & DEN BIEMAN, 2018), recent

discoveries pointed out that it is less the case in France and on the Iberian Peninsula (LE CESNE *et al.*, 2022; personal observations of fourth author). The most recent lists of planthoppers inhabiting France were published by NAST (1972, 1987), supplemented in 2001 by DELLA GIUSTINA & REMANE. *Cixius armatus* Ribaut, 1953, is one of the species known from France and is considered a French endemic, mentioned from only two French localities (RIBAUT & LACROIX, 1958). Its biology is poorly known, and no observation has been published since its description and records in the 1950's. We present an update of our knowledge of the species, provide an English translation of the original description, summarise ecological data based on some recent records and provide the first records of this species from Spain.

MATERIAL AND METHODS

Photographs of the type specimen were taken using a Canon EOS 6D with a Canon EF 100 mm f/2.8 macro lens and subsequently assembled using Helicon Focus 6 software. Photographs of terminalia were made with a mirrorless camera (Sony A& III) and a 10× and 20× microscope objective mounted on a motorised vertical focus stacking setup (MJKZZ ultra rail set) controlled by MJKZZ Focus Stacking Software. Habitus photos of the Spanish specimen were prepared in the same way using a macro lens Laowa 25 mm f/2.8 2.5 - 5×. Stacks were prepared with Helicon Focus, and stacked photos were subsequently processed in Adobe Lightroom and Adobe Photoshop. The map was built using QGIS 3.22.1 “Białowieża”.

Abbreviations. – MNHN, Muséum national d’Histoire naturelle, Paris, France; RBINS, Royal Belgian Institute of Natural History, Brussels, Belgium; RMNH, Naturalis Biodiversity Center, Leiden, the Netherlands.

RESULTS

Cixiidae Spinola, 1839

Cixiinae Spinola, 1839

Cixiini Spinola, 1839

Cixius Latreille, 1804

Cixius (Sciocixius) Wagner, 1939

Cixius armatus Ribaut, 1953 (fig. 1-5)

Type material examined. – HOLOTYPE (fig. 1): ♂, “Forêt de Touffou / (L. inf.) / coll. Ribaut // MNHN, Paris / EH20890 // *Cixius armatus* // *Cixius armatus* // Type” (in MNHN).

PARATYPE : 1 ♂, “Forêt de Touffou / (L. inf.) / coll. Ribaut // MNHN, Paris / EH20889 // *Cixius armatus* // Paratype” (in MNHN).

Other material examined. – FRANCE. **Cher (18)**. 1 ♂, Vierzon, forêt de Vierzon (47.26115°N, 2.03274°E), 12-28.IV.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det.; 1 ♂, Vierzon, forêt de Vierzon (47.26008°N, 2.032773°E), 26.V-23.VI.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det. – **Indre (36)**. 3 ♂, Ardentes, forêt domaniale de Châteauroux (46.74015°N, 1.75229°E), 5.IV-05.V.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det.; 9 ♂, Ardentes, forêt domaniale de Châteauroux (46.73962°N, 1.754777°E), 5.IV-5.V.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det.; 3 ♂, Ardentes, forêt domaniale de Châteauroux (46.74015°N, 1.75229°E), 5.V-2.VI.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det.; 9 ♂, Ardentes, forêt domaniale de Châteauroux (46.73962°N, 1.754777°E), 5.V-2.VI.2021,



Fig. 1. – *Cixius armatus* Ribaut, holotype. – **A**, Lateral view. – **B**, Dorsal view. – **C**, Facial view. – **D**, Labels. – **E**, Original slide on which the genitalia were glued on.

collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det.; 5 ♂, Arthon, forêt domaniale de Châteauroux (46.7248°N, 1.7073°E), 5.IV-5.V.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det.; 2 ♂, Arthon, forêt domaniale de Châteauroux (46.72356°N, 1.705768°E), 5.IV-5.V.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det.; 5 ♂, Arthon, forêt domaniale de Châteauroux (46.72585°N, 1.693801°E), 5.IV-5.V.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det.; 3 ♂, Arthon, forêt domaniale de Châteauroux (46.72356°N, 1.705768°E), 5.V-2.VI.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det.; 1 ♂, Arthon, forêt domaniale de Châteauroux (46.72585°N, 1.693801°E), 5.V-2.VI.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det.; 6 ♂, Arthon, forêt domaniale de Châteauroux (46.72566°N, 1.694983°E), 5.V-2.VI.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det.; 1 ♂, Le Poinçonnet, forêt domaniale de Châteauroux (46.74873°N, 1.73487°E), 5.IV-5.V.2021, in flight-interception trap (Polytrap), team Canopée leg., S. Damoiseau det.; 4 ♂, Le Poinçonnet, forêt domaniale de Châteauroux (46.74873°N, 1.73487°E), 5.IV-5.V.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det.; 3 ♂, Le Poinçonnet, forêt domaniale de Châteauroux (46.74946°N, 1.736774°E), 5.IV-5.V.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det.; 3 ♂, Le Poinçonnet, forêt domaniale de Châteauroux (46.74158°N, 1.694465°E), 5.IV-5.V.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det.; 3 ♂, Le Poinçonnet, forêt domaniale de Châteauroux (46.74315°N, 1.696334°E), 5.IV-5.V.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det.; 1 ♂, Le Poinçonnet, forêt domaniale de Châteauroux (46.71367°N, 1.77519°E), 5.IV-5.V.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det.; 4 ♂, Le Poinçonnet, forêt domaniale de Châteauroux (46.74873°N, 1.73487°E), 5.V-2.VI.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det.; 2 ♂, Le Poinçonnet, forêt domaniale de Châteauroux (46.74315°N, 1.696334°E), 5.V-2.VI.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det.; 10 ♂, Le Poinçonnet, forêt domaniale de Châteauroux (46.71539°N, 1.776442°E), 5.V-2.VI.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det.; 1 ♂, Le Poinçonnet, forêt domaniale

de Châteauroux (46.74873°N, 1.73487°E), 2-30.VI.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det.; 1 ♂, Le Poinçonnet, forêt domaniale de Châteauroux (46.71539°N, 1.776442°E), 2-30.VI.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det.; 1 ♂, Ruffec, boisement de la Rouère (46.60612°N, 1.17589°E), 4.IV-7.V.2025, in flight-interception trap (Polytrap), S. Damoiseau leg. – **Loir-et-Cher (41)**. 1 ♂, Huisseau-sur-Cosson, forêt domaniale de Boulogne (47.58171°N, 1.44562°E), 5.V-2.VI.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det.; 1 ♂, Huisseau-sur-Cosson, forêt domaniale de Boulogne (47.58135°N, 1.448126°E), 5.V-2.VI.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det.; 1 ♂, Huisseau-sur-Cosson, forêt domaniale de Boulogne (47.58578°N, 1.469895°E), 5.V-2.VI.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det.; 1 ♂, Huisseau-sur-Cosson, forêt domaniale de Boulogne (47.58578°N, 1.469895°E), 5.V-2.VI.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det.; 2 ♂, Neuvy, forêt domaniale de Boulogne (47.57013°N, 1.622222°E), 5.IV-5.V.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det.; 3 ♂, Neuvy, forêt domaniale de Boulogne (47.57045°N, 1.621727°E), 5.IV-5.V.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det. – **Loire-Atlantique (44)**. 1 ♂, Grand-Auverné, étang de la Forge Neuve (47.60136°N, -1.34434°W), 16.IV.2021, in a wooded path, beating *Pseudotsuga menziesii*, T. Cherpitel leg.; 1 ♂, Grand-Auverné, étang de la Forge Neuve (47.60179°N, -1.34252°W), 16.IV.2021, on the edge of a stand of pines and dry heathland, beating *Pinus nigra*, T. Cherpitel leg.; 3 ♂, 2 ♀, Grand-Auverné, étang de la Forge Neuve (47.60195°N, 1.34085°W), 11.IV.2025, on the edge of a stand of pines and dry heathland; 2 ♂, 1 ♀, beating *Crataegus monogyna*, 1♂1♀ beating *Pyrus pyraster*, T. Cherpitel leg.; 3 ♂, 3 ♀, Grand-Auverné, étang de la Forge Neuve (47.60408°N, 1.34174°W), 21.IV.2025, on the edge of a dry heathland, beating *Quercus robur*, T. Cherpitel & M. Le Cesne leg.; 1 ♂, Marsac-sur-Don, étang de la Roche (47.59790°N, 1.71723°W), 24.III.2024, in a mixed acidiphilous forest, at beating, P. Chevillard leg., T. Cherpitel & M. Le Cesne det. (<https://www.inaturalist.org/observations/203954860>); 1 ♂, Vallons-de-l'Erdre, Saint-Mars-la-Jaille, forêt de Saint-Mars-la-Jaille (47.54585°N, 1.20177°W), 26.IV.2024, in mixed acidiphilous forest, sweeping *Calluna vulgaris*, T. Cherpitel & M. Filipe leg., T. Cherpitel det.; 1 ♂, Le Cellier, les Coulées (47.31960°N, 1.36062°W), 29.III.2024, in a little wooded valley near a stream, A. Racine leg., A. Racine & T. Cherpitel det. – **Loiret (45)**. 1 ♂, Seichebrières, forêt d'Orléans (47.98251°N, 2.293653°E), 30.III-29.IV.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det.; 1 ♂, Seichebrières, forêt d'Orléans (47.98276°N, 2.294095°E), 30.III-29.IV.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det. – **Maine-et-Loire (49)**. 2 ♂, Montrevault-sur-Èvre, Le Fuilet, les Recoins, étang des Bruyères (47.25871°N, 1.13519°W), 7-14.V.2014, collected in Malaise trap, C. Monvoisin leg., S. Barbier det.; 1 ♂, Montrevault-sur-Èvre, Le Fuilet, landes du Fuilet (47.25584°N, 1.13318°W), 24-30.IV.2014, collected in Malaise trap, C. Monvoisin leg., S. Barbier det.; 1 ♂, Orée d'Anjou, Landemont, le Frêne (47.25979°N, 1.26467°W), 28.III.2016, in a little wooded valley, under a stone, S. Barbier leg.; 1 ♂, Ombrée d'Anjou, Pouancé, la Pidaie (47.74725°N, 1.15768°W), 10.IV.2024, on the edge of a shrubbery, beating *Prunus* sp., T. Cherpitel leg. – **Manche (50)**. 1 ♂, Ducey-les-Chéris, bois d'Ardennes (48.6033°N, 1.2881°W), 1.IV.2024, A. Racine leg., A. Racine & T. Cherpitel det. – **Oise (60)**. 1 ♂, La Chapelle-en-Serval, forêt de Chantilly (49.12481°N, 2.515993°E), 29.IV-26.V.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det.; 1 ♂, La Chapelle-en-Serval, forêt de Chantilly (49.125°N, 2.516536°E), 29.IV-26.V.2021, collected in multi-funnel traps (green), team Canopée leg., S. Damoiseau det. – **Hautes-Pyrénées (65)**. 1 ♂, Moulédous, 1-13.IV.2024, beech-oak forest, in flight-interception trap (Polytrap) placed on dead beech, leg. D. Lessieur; 1 ♂, Moulédous, 2.V.2024, beech-oak forest, while beating vegetation of a sunken path crossing the wood, leg. D. Lessieur; 2 ♂, Moulédous, 2-17.V.2024, beech-oak forest, in flight-interception trap (Polytrap) placed on a shrub above dead wood on the ground, leg. D. Lessieur. – **Sarthe (72)**. 2 ♂, 3 ♀, Champagné, Camp d'Auvours, 7-28.IV.2023, collected in Malaise trap, F. Herbrecht & B. Hubert leg., T. Cherpitel det. – **Vendée (85)**. 1 ♂, Saint-Hilaire-de-Loulay (47.00616°N, 1.33936°W), 1.IV.2025, in a mixed acidiphilous forest, at beating (*Crataegus monogyna* or *Prunus spinosa*), P. Chevillard leg., T. Cherpitel det. (<https://www.inaturalist.org/observations/268286148>).

SPAIN. Basque Country. 2 ♂, 7 ♀, "Álava - Urkabustaiz / - east of Izarra / 42.957°N, 2.877°W, 24-26.V.2023 / Malaise trap / Leg. Paul Hoekstra // *Cixius armatus* / Ribaut, 1953 / det. M.C. de Haas, 2023" (in coll. M. C. de Haas). - **Castille and León.** 1 ♂, "PTO.de SAN / GLÓRIO 20 km SW / of Potes 1500 m / 29.VI.1981 // ESPANA / Santander / M.J. & J.P. Duffels // *Cixius armatus* ♂ / Ribaut, 1953 / det. M.C. de Haas, 2024 // ZMA.INS.1446965" (in RMNH).

Distribution. - France: Cher (new record), Indre (new record), Loir-et-Cher (new record), Loire-Atlantique, Haute-Garonne, Maine-et-Loire (new record), Loiret (new record), Manche (new record), Oise (new record), Hautes-Pyrénées (new record), Sarthe (new record), Vendée (new record).

Spain: Basque Country (new record), Castille and León (new record).

Redescription. - Here, Ribaut's original description is given together with an English translation.

« Long. ♂, 5,3-5,5 mm.; ♀, 6,6-6,8 mm »

Length ♂: 5,3-5,5 mm.; ♀: 6,6-6,8 mm.

« . - Partie postérieure du vertex très courte au milieu et très largement arrondie en avant. Granules marginaux des élytres en nombre assez variable (16 à 22) ; ils sont à peine plus gros que les autres, mais le pigment qui les recouvre peut s'étendre plus ou moins autour d'eux et leur donner l'apparence d'une dimension notablement plus élevée ; sur la région médiane des élytres, les granules sont situés alternativement à droite et à gauche des nervures. »

Posterior part of the vertex extremely short in the middle and very broadly rounded in front. Tubercles on the costa of the fore wing with quite variable in number (16 to 22); they are only slightly larger than the others, but the pigment covering them may extend around them and give them a significantly larger appearance; on the median region of the elytra, the tubercles are situated alternately to the right and left of the veins.

« Antennes à article basal d'un jaune brun et à fouet noir. Front et clypéus noirs, leur carène médiane jaune, ainsi que leur bord largement ; à la partie supérieure du front cette marge claire s'étend en une plage triangulaire à pointe dirigée vers le rostre. Vertex jaune, vaguement taché de brun. Pronotum jaune, avec la partie cachée par les yeux d'un brun foncé. Mésonotum noir, à bord postéro-latéral étroitement jaune. Ecaïlles jaunes. Pattes d'un brun jaunâtre. Élytres lavés de brun clair, avec une vague bande transverse brune à l'union des tiers antérieur et moyen, un peu mieux marquée contre la commissure. Nervures jaunes à granules d'un brun foncé ; l'extrémité des nervures apicales et les nervures transverses apicales d'un brun noirâtre, le pigment les débordant un peu. Stigma brun dans sa moitié postérieure, jaunâtre en avant. Ailes à peu près uniformément enfumées, avec les nervures d'un brun noirâtre. »

Antennae with brownish-yellow basal article and black flagellum. Forehead and clypeus black, their median carina yellow, as their margin; on the upper part of the forehead, this clear margin extends into a triangular patch pointing towards the rostrum. Vertex yellow, vaguely spotted with brown. Pronotum yellow, with its hidden part (behind the eyes) dark brown. Mesonotum black, with narrow yellow posterolateral margin. Tegulae yellow. Legs yellowish brown. Forewings moderately light brown, with a vague transverse brown band at the junction of the anterior and middle thirds, slightly more pronounced against the commissure. Veins yellow with dark brown tubercles; the tips of the apical veins and the apical transverse veins blackish brown, with the pigment slightly extending beyond them. Stigma brown in the posterior half, yellowish in the anterior half. Wings almost uniformly smoky, with blackish-brown veins.

« Mâle. - Tube anal à lobes peu développés, non visibles dorsalement. Styles à palette sécuriforme, nettement plus large que longue, entièrement déjetée vers l'extérieur.

Pénis muni de trois cornes (une gauche et deux droites). Il est très voisin de celui de *C. dubius* W. Wgn. 1939. Comme chez celui-ci la crête ventrale est déjetée à droite en formant un bourrelet, qui détermine un profond sillon où vient se loger en partie la corne droite ventrale. De même, la crête dorsale gauche est à peu près inexistante. Chez *C. armatus* le bord de la crête dorsale droite est régulièrement arrondi, tandis que chez *C. dubius* il est émarginé et forme un angle basal très accusé. La corne droite

ventrale est plus grêle et plus allongée que chez C. dubius et sa pointe est recourbée vers le dos. Enfin la corne gauche est moins épaisse et ne présente pas un renflement de la région moyenne comme chez C. dubius. »

Male. – Anal tube with poorly developed lobes, not visible dorsally. Gonostyli with an axe-shaped pallet, clearly wider than long, and entirely projecting outwards (fig. 2A).

Phallosome with three movable spines (one left and two right). It is very similar to *C. dubius* Wagner, 1939. As in the latter, the ventral ridge projects to the right, forming a bulge which makes a deep groove where the right ventral spine is partially housed. Similarly, the left dorsal ridge is almost non-existent (fig. 2B-F). In *C. armatus*, the edge of the right dorsal ridge is regularly rounded, whereas in *C. dubius* it is emarginate and forms a very pronounced

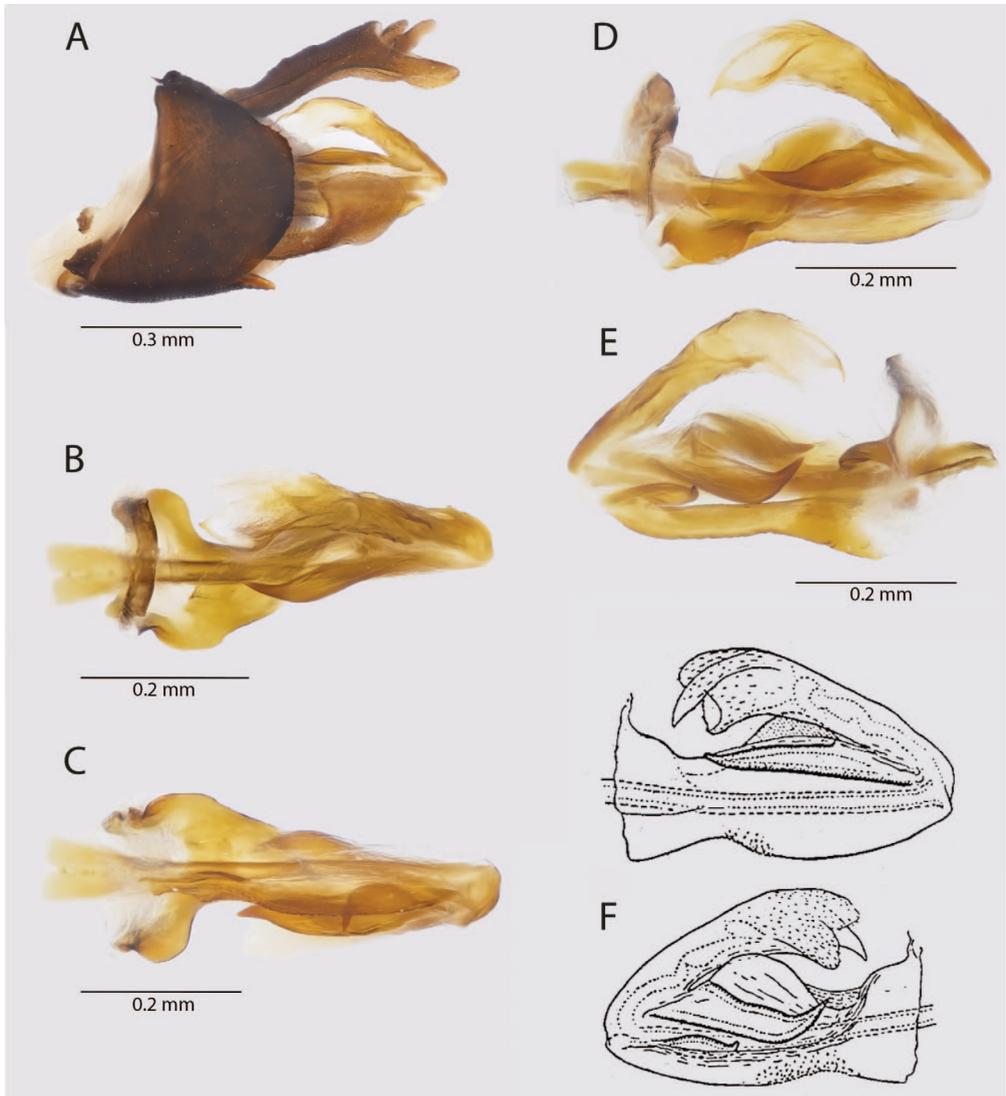


Fig. 2. – Illustration of the terminalia of *Cixius armatus* Ribaut from Champagné, Camp d'Auvours (France, Sarthe). – A, Complete terminalia in left lateral view. – B-E, Aedeagus: B, dorsal view; C, ventral view of the aedeagus; D, left lateral view; E, right lateral view (A to E, © Marco de Haas). – F, Modified drawing of the right and left lateral view of the aedeagus from Ribaut, 1953.

basal angle. The right ventral spine is smaller and more elongated than in *C. dubius*, and its tip is curved backwards. Finally, the left spine is thinner and does not have a bulge in the middle region as in *C. dubius*.

Remark. – The genitalia were prepared by H. Ribaut on a slide (fig. 1E), in a box separated from the specimen. To avoid future confusion and possible loss, we removed the genitalia from the slide and placed them in glycerine in a microvial pinned directly beneath the type specimen to which they belong.

DISCUSSION

Ecology. – *Cixius armatus* is a species mostly found in wooded environments of diverse sizes, its type locality being the forest of Touffou (France, Loire-Atlantique). Nevertheless, the species is also observed in heathland ecosystems (“le Fuilet” and “étang de la Forge Neuve” heathlands, fig. 4), and one individual was captured in a more agricultural context. It should be noted that most of the forests and woodlands where the species is present are oak forests.

The species seems to be most abundant in the early spring, with observations made from late March to May, and very rarely in June. This is congruent with the conclusion of RIBAUT & LACROIX (1958): « males were abundant in April 1957; they had disappeared by June ».



Fig. 3. – *Cixius armatus* Ribaut from Àlava, Urkabustaiz in Spain. – **A**, Dorsal view. – **B**, Lateral view. © Matthé De Haas

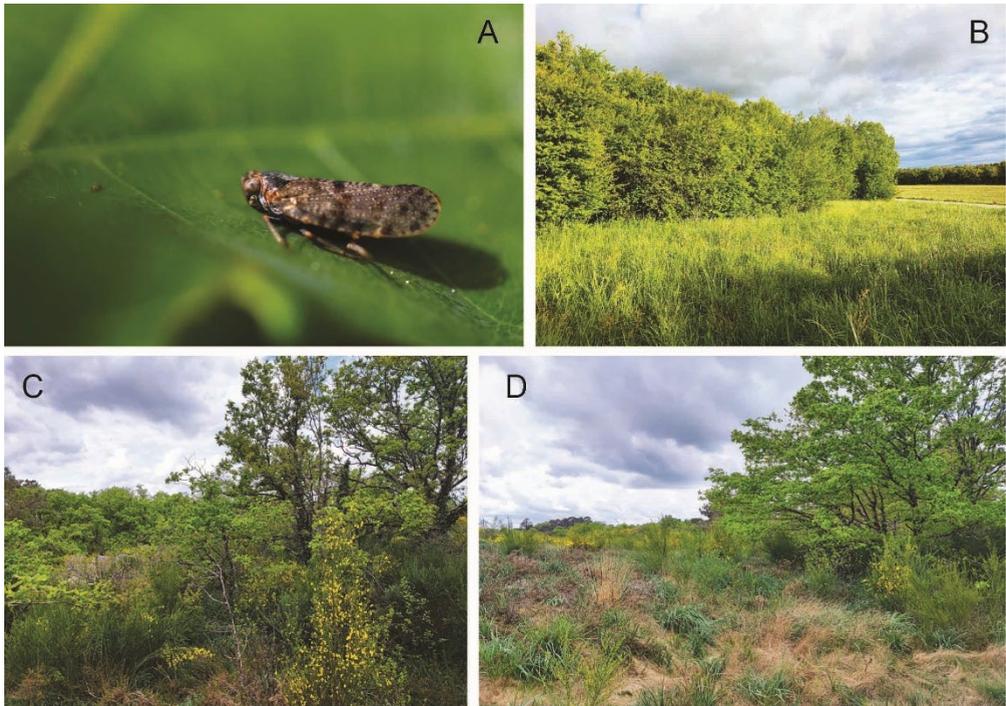


Fig. 4. – **A**, *Cixius armatus* Ribaut, from Loire-Atlantique, France (© Maxime Le Cesne); **B-D**, Examples of habitats of *Cixius armatus* : **B**, Ombrée d’Anjou, Pouancé (France, Maine-et-Loire) (© Thomas Cherpitel) ; **C-D**, Grand-Auverné, Étang de la Forge Neuve (France, Loire-Atlantique) (© Thomas Cherpitel).

The host plants of *C. armatus* remain unknown, but the species was collected on various tree and shrub species: *Pseudotsuga menziesii* (Mirb.) Franco, *Pinus nigra* J.F. Arnold, *Prunus* sp., *Crataegus monogyna* Jacq., *Pyrus pyrastrer* (L.) Burgsd., *Calluna vulgaris* (L.) Hull, *Quercus robur* L. and RIBAUT & LACROIX (1958) quoted an unspecified oak species. The Cixiidae are known to have their larval state close to roots, living close or even underground (HOLZINGER *et al.*, 2002; LE CESNE *et al.*, 2024), and the presence of Cixiidae species in the subterranean ecosystems is asserted (HOCH, 1994, 2002; LE CESNE *et al.*, 2022, 2023, 2024) even for epigeal known species (personal observations). The observation of one specimen under a stone could be a clue to such subterranean life habits. The species is occasionally captured using several interceptions trapping methods: green multi-funnel traps, Malaise traps, and Polytraps.

In France and Spain, the species has been found regularly in syntopy with *Tachycixius pilosus* (Olivier, 1792), which is one of the first cixiids to appear in early spring. In central France, it has also been occasionally found with *Cixius stigmaticus* (Germar, 1818).

Distribution. – The species was considered endemic to France from its typical locality where it was collected by Paul Pionneau, the forest of Touffou (RIBAUT, 1953; RIBAUT & LACROIX, 1958) and further south in the Haute-Garonne department (RIBAUT & LACROIX, 1958). In the last years, different captures expanded its distribution to other French departments and Spain (fig. 3-5). These different new records give us an important update on the distribution of the species, but also point out the need for prospection of regions where the species is certainly present, such as the Nouvelle-

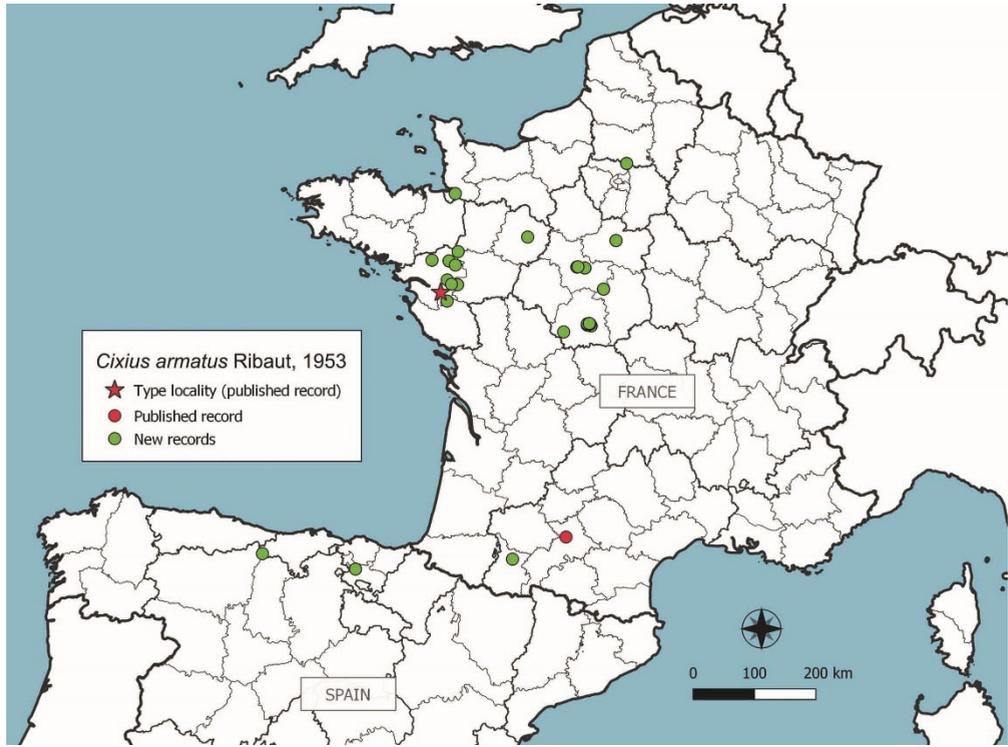


Fig. 5. - Updated distribution of *Cixius armatus* Ribaut.

Aquitaine, Île-de-France and Bretagne in France, and other Spanish territories like the Cantabria (fig. 5). Based on the data compiled, *C. armatus* seems to appreciate a 'normal' to degraded oceanic climate and does not appear to be present in more continental climates.

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