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NEW DATA ON *AEGILOPS UNIARISTATA* VIS. IN ITALY

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New data on *Aegilops uniaristata* Vis. (syn.: *Triticum uniaristatum* (Vis.) K. Richt.) in Apulia are given. A new locality of *A. uniaristata* in Apulia on the Adriatic coast of the Italian Peninsula is discovered. The taxon was already known from the Mediterranean East and Croatian coasts. *A. uniaristata* is deemed relevant and is included into the Regional Red List of plants (Apulia) as endangered (EN) and into the Red Book of Croatian vascular flora as near threatened (NT).

Key words: new data, distribution, *Aegilops uniaristata* Vis., Apulia Region

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U radu se donose novi podaci o *Aegilops uniaristata* Vis. (syn.: *Triticum uniaristatum* (Vis.) K. Richt.) u regiji Apuliji. Zabilježeno je novo nalazište *A. uniaristata* u Apuliji na obali Jadranskoga mora. Svojta je već poznata s obala istočnog Sredozemlja i Hrvatske. *A. uniaristata* je procijenjena važnom i kao takva je uključena u Regionalni crveni popis biljaka (Apulija) kao ugrožena te u Crvenu knjigu vaskularne flore Hrvatske kao niskorizična vrsta (NT).

Ključne riječi: novi podaci, rasprostranjenost, *Aegilops uniaristata* Vis., regija Apulija

INTRODUCTION

In the flora of Europe (TUTIN & HUMPHRIES, 1980), *Aegilops* L. is represented by 10 species. The revision of the genus *Aegilops* regarding its genome and taxonomy gives a total of 27 specific and intraspecific taxa (VAN SLAGEREN, 1994; ČEREPANOV, 1996). It is worth to mention that some authors, such as HAYEK (1932) and CONTI *et al*. (2005), included *A.* in the *Triticum* genus. However, the majority of botanists, whether they agree with this nomenclature or not, continue to refer to *Aegilops*.

There are six species of *Aegilops* in the Croatian flora (FLORA CROATICA DATABASE, 2004), and three of them (*A. cylindrica* Host, *A. neglecta* Req. ex Bertol., *A. uniaristata* Vis.) are near threatened (NT) (NIKOLIĆ & TOPIĆ, 2005). In Italy, there are known eight species of the genus *Aegilops* (PIGNATTI, 1982). Regarding *Aegilops*, Apulia is the richest Italian region, with seven species (*A. biuncialis* Vis., *A. cylindrica*,

A. neglecta, *A. geniculata* Roth, *A. triuncialis* L., *A. ventricosa* Tausch and *A. uniaristata* Vis.). Recently, in Italy *A. ventricosa* has been included into *A. fragilis* Parl. (CONTI *et al*., 2005). Six of the Italian *A.* species (*A. biuncialis*, *A. cylindrica*, *A. fragilis*, *A. neglecta*, *A. uniaristata* and *A. triuncialis*) are included in IUCN categories and 4 of them (*A. biuncialis*, *A. fragilis*, *A. uniaristata* and *A. ventricosa*) grow in Apulia. *A. biuncialis* and *A. fargilis* are critically endangered, while *A. ventricosa* is protected by law. *A. uniaristata* is marked as an endangered species (EN) and as such is listed in the Regional Red List plants of Apulia (CONTI *et al*., 1992; 1997) and as at risk of extinction in the Atlas of Species (SCOPPOLA & SPAMPINATO, 2005).

A. uniaristata is a species widespread throughout Eastern Mediterranean countries: Croatia, Greece (islands included), Albania and Italy (HAYEK, 1932; VISIANI, 1852; DAVIS, 1986; VAN SLAGEREN, 1994). According to the recent work Vascular Flora of Turkey (SEMIZ & CELIK, 2005) *A. uniaristata* does not occur in this country. In addition, *A. uniaristata* is also important for the environment in which it grows, a characteristic type of vegetation that probably could be included into »*Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea*« (code *6220), a priority habitat of directive habitat 92/43 CEE (European Commission, 1992; European Commission DG Environment, 2007; SAN MIGUEL, 2008).

METHODS

For identification of plants the floras of PIGNATTI (1982) and TUTIN *et al*. (1980) were used, but for *Aegilops* species only the monograph by VAN SLAGEREN (1994) was considered. The nomenclature matches that of CONTI *et al.* (2005), except for the genus *Aegilops* following VAN SLAGEREN (1994).

Herbarium specimens of *A. uniaristata* were deposited in the Herbarium of Botanical Garden Museum, University of Bari.

RESULTS AND DISCUSSION

The most recent studies of Croatian flora, such as those in Krka National Park (MILOVIĆ & MITIĆ, 2009), Vrgada island and surrounding islets (PILJAC-KOSOVIĆ & PANDŽA, 2009) and of Istrian grasses (VITASOVIĆ KOSIĆ & BRITVEC, 2005), indicate the presence of *Aegilops neglecta* Req. ex Bertol., and (for the last two areas only) of *A. triuncialis*, but not of *A. uniaristata*, which confirms its limited presence in only some localities of Southern Istria (Montecchio, V. Bado, Altura, Pula/Pola, V. Bandon, Sikić, Vinkuran, etc.) (FREYN, 1978). *A. uniaristata* is absent also from the Vela Kluda islands (VLADOVIĆ *et al*., 2001).

In Italy, *A. uniaristata* is reported only in the Apulia and Basilicata regions, while it is uncertain in Calabria (CONTI *et al*., 2005). Previously, this taxon was considered exclusive to Apulia (PIGNATTI, 1982), and present only at one locality, Leucaspide (Taranto) (GROVES, 1887). Later it was reported for other localities, with a good range of distribution: south eastern Murge (Taranto), Laterza ravine and near Pianelle wood (Martina Franca), between Spongano, Surano (Lecce) (BIANCO *et al*., 1989), Rauccio wood (Lecce), Santa Cesarea Terme (MARCHIORI *et al*., 1993) and

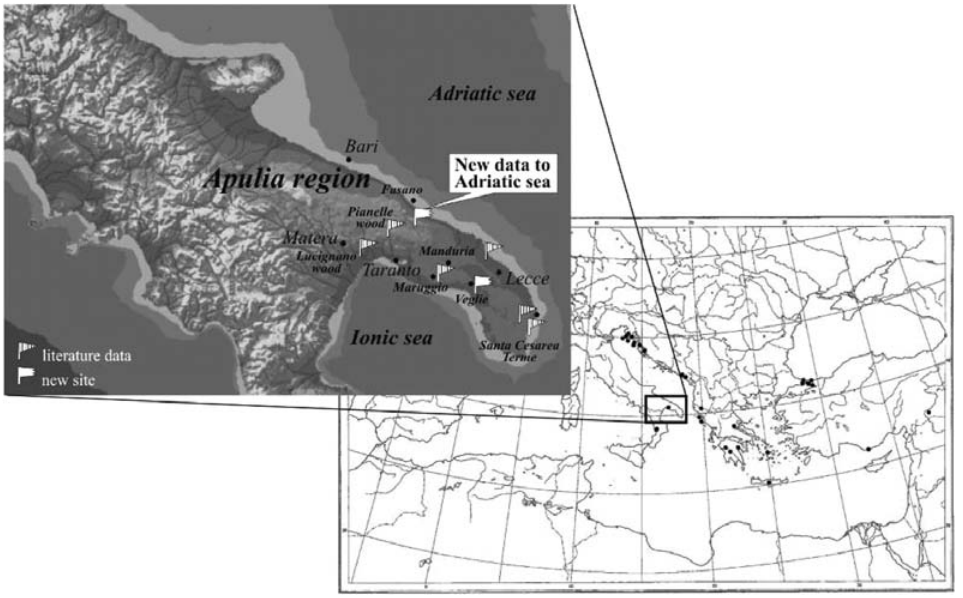

Fig. 1. New sites of *Aegilops uniaristata* Vis., including the new location on the Adriatic Sea coast, in the Apulia region and Eastern Mediterranean area (map in the back: van Slageren, 1994).

more recently in an olive grove between Maruggio and Manduria (Taranto) (CAFORIO & MARCHIORI, 2006), and Veglie (Lecce) (Medagli, *Herbarium Lupiensis* LEC). The only data for the Basilicata region are those from Lucignano wood, near Matera (MEDAGLI & GAMBETTA, 2003).

The presence of this species at the border of a monumental olive grove inside the Coastal Dune between Torre Canne (Fasano) and Torre San Leonardo (Brindisi) is a locality of considerable interest in Apulia, because it is located on the Adriatic-coast, the second such location after that of Rauccio (Fig. 1). The population was identified from only a few individuals, one of which was collected and is preserved in the *Herbarium Horti Botanici Barensis* (BI) (Fig. 2). The geographic coordinates of the collection site are: (UTM – WGS 84): N 4641488; E 578521.

The new station of *A. uniaristata* (Fig. 3) fits into a unique landscape, which is rich in ecological infrastructure (Fig. 4) of other species of conservation interest, such as *Stipa austroitalica* Martinovský subsp. *austroitalica*, *Helianthemum jonium* Lacaita, *Crepis corymbosa* Ten. and two amphi-Adriatic species: *Asyneuma limonifolium* (L.) Janch. subsp. *limonifolium* and *Scrophularia lucida* L. (PERRINO *et al.*, 2009).

The vegetation context in which the newly found plants grow presents a mosaic of shrubs, to evergreen sclerophyllous, low chamaephytic garrigues and annual meadows. The first coenosis is rich in heliophilous elements and correspond to the alliance *Oleo-Ceratonion siliquae* Br.-Bl. 1936 em. Rivas Martínez 1975, with *Myrtus communis* L., *Pistacia lentiscus* L., *Rhamnus alaternus* L., and with the subordinated presence of some deciduous shrubs as *Anagyris foetida* L., *Calicotome villosa* (Poir.) Link, *Pyrus spinosa* Forssk. and *Spartium junceum* L. The chamaephytic garrigues occur where

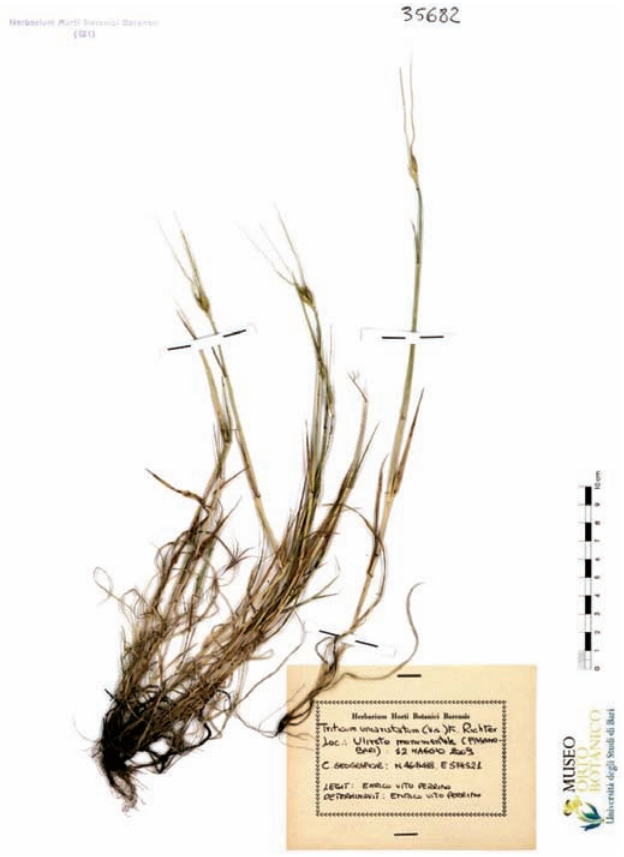

Fig. 2. Herbarium specimen 35682 of *Aegilops uniaristata* Vis., syn.: *Triticum uniaristatum* (*Herbarium Horti Botanici Barensis*).

Fig. 3. *Aegilops uniaristata* Vis. at the new Apulia site.

Fig. 4. An example of the habitat of *Aegilops uniaristata* Vis. in Apulia.

bare rock provides groupings of *Thymus capitatus* (L.) Hoffmanns. & Link or *Satureja cuneifolia* Ten., both referring to the alliance *Cisto-Ericion* Horvatić 1958. In the Mediterranean environment most of the therophytic meadows refer to two alliances of *Brachypodietalia distachyi* Rivas-Martínez 1978: *Hypochoerion achyrophori* BIONDI & GUERRA 2008, of the central Europe-Mediterranean and *Brachypodion distachyi* Rivas-Martínez 1978, of the western Mediterranean. In the olive tree grove there were two kinds of meadows observed, referring to the alliance *Hypochoerion achyrophori*. The first one is dominated by *Stipa capensis* Thunb., which seems to prefer substrates rich in organic matter, and the second by *Trachynia distachya* (L.) Link which identifies a coenosis less exigent in organic matter concentration (BIONDI & GUERRA 2008). The floristic composition of this vegetation is made up of: *Aegilops geniculata* Roth subsp. *geniculata*, *Aegilops uniaristata* Vis., *Ajuga iva* (L.) Schreber, *Briza maxima* L., *Crepis corymbosa* Ten., *Cynosurus echinatus* L., *Echium parviflorum* Moench, *Euphorbia exigua* L. subsp. *exigua*, *Filago pygmaea* L., *Hypochaeris achyrophorus* L., *Linum strictum* L., *Lotus ornithopodioides* L., *Medicago minima* L., *Medicago truncatula* Gaertn., *Onobrychis aequidentata* (Sm.) D'Urv., *Ononis reclinata* L., *Scorpiurus muricatus* L., *Sideritis romana* L. subsp. *romana*, *Stipa capensis* Thunb., *Trachynia distachya* (L.) Link, *Trifolium campestre* Schreb., *Trifolium scabrum* L., *Trifolium stellatum* L., *Valantia muralis* L., *Valerianella muricata* (Stev. ex M. Bieb.) J.W. Loudon and *Vulpia ligustica* (All.) Link.

CONCLUSION

Before the discoveries by MARCHIORI *et al*. (1993) and PERRINO *et al*. (2009), in Italy and particularly in Apulia, other sites of *A. uniaristata* were identified by VAN SLAGEREN (1994), all of them situated in the hinterland or in areas influenced by the Ionian Sea, but never referring to the Adriatic coast. It is not surprising considering the floristic affinity between the East and West coast of the Adriatic Sea. Regarding to the ecological aspect of the species, one has to remark that the edge of an olive

tree grove is one of its favourite habitats (PERRINO *et al*., 2009; VAN SLAGEREN, 2004) and that a clearing in a wood creates a good environment for its development.

The results of the present work taken together with the lack of floristic data for long stretches of the coast (ALBANO *et al*., 2005), except that of Monopoli (PERRINO & SIGNORILE, 2009), suggest new field works are needed. In fact, *A. uniaristata* seems to be more widespread along the Adriatic coast of Apulia than one would expect.

For these reasons, on the basis of the present findings, in the future one should investigate in the following three directions: i) checking if *A. uniaristata* has »always« been there and was just overlooked by previous botanists; ii) checking if »recent« environmental and climatic changes have created new ecological niches for the species; iii) checking if the species has developed special adaptation to and colonization of new ecological niches. Since none of these three cases can be excluded, one should promote more research in the field, along the coast of Apulia, to search for new sites, and in the lab, for checking the taxonomy of specimens at the morphological and molecular level. Genetic variability correlated with environmental conditions may show special adaptation patterns. The results of this new study could suggest changes in the taxonomical status of the investigated species and provide new information on the interactions between wild (*Aegilops*) and cultivated (*Olea*) species.

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