

# A new successful breeding site of Collared Pratincole *Glareola pratincola* along the northern Adriatic coastline

Stefano Sponza<sup>1\*</sup>, Paolo Salvador<sup>2</sup>

**Abstract** - The Collared Pratincole *Glareola pratincola* has a large and fragmented breeding distribution in the Palearctic. In Italy it is an uncommon migrant breeder and the breeding sites are very patchily distributed and irregularly used, with most frequent occurrences in the N Adriatic, N Apulia, Campania, Sardinia and Sicily. We report a new breeding site for the species along the northern Adriatic coastline in the Marano and Grado Lagoon (Friuli Venezia Giulia region, NE Italy), which represents the first breeding evidence for the Friuli Venezia Giulia region.

**Keywords:** *Glareola pratincola*, new breeding site, Adriatic Sea, sandflat, breeding colony, Marano and Grado Lagoon.

**Riassunto** - Un nuovo sito riproduttivo di successo di pernice di mare *Glareola pratincola* lungo la costa dell'Adriatico settentrionale.

La pernice di mare *Glareola pratincola* ha un areale riproduttivo ampio e frammentato nel Palearctico. In Italia è migratore e nidificante poco comune e i siti riproduttivi sono distribuiti e frequentati in modo irregolare, principalmente lungo il Nord Adriatico, Puglia settentrionale, Campania, Sardegna e Sicilia. Con questo lavoro segnaliamo un nuovo sito riproduttivo per la specie lungo la linea costiera dell'Adriatico settentrionale nella Laguna di Marano e Grado (Friuli Venezia Giulia, NE Italia), prima testimonianza di un evento riproduttivo della specie per il Friuli Venezia Giulia.

**Parole chiave:** *Glareola pratincola*, nuovo sito riproduttivo, Mar Adriatico, banco sabbioso, colonia riproduttiva, Laguna di Marano e Grado.

## INTRODUCTION

The Collared Pratincole *Glareola pratincola* is a colonial wader and it has a large and fragmented breeding distribution in the Palearctic across Africa, S Europe and W Asia (Cramp & Simmons, 1983; Del Hoyo *et al.*,

1996; Lokhman *et al.*, 2020). It is a species of conservation concern (BirdLife International, 2022a); the global population is estimated around 140,000 pairs (Wetlands International, 2018). In Europe, it is mainly concentrated in the western part of its range, e.g. Iberian Peninsula (Lokhman *et al.*, 2020). Most populations are facing a decline since the 1990s at continental scale (Cramp & Simmons, 1983; Dolz, 1994), particularly as a consequence of human-induced habitat changes and habitat loss (Cramp & Simmons, 1983; Calvo *et al.*, 1993; Dolz, 1994; Calvo & Furness, 1995; Calvo & Vázquez, 1995; Del Hoyo *et al.*, 1996). In Europe, the breeding population was estimated at 7800-14900 pairs with a decreasing trend (BirdLife International, 2017; 2021). However, trends are difficult to determine due to the tendency of the Collared Pratincole to change breeding sites year to year (Lokhman *et al.*, 2020). In Italy it is an uncommon migrant breeder and the breeding sites are very patchily distributed and irregularly used, with most frequent occurrences in the N Adriatic, N Apulia, Campania, Sardinia and Sicily (Brichetti & Fracasso, 2018). The main breeding areas are historically located in Emilia-Romagna, Sardinia and Sicily regions, while in the other Italian geographic regions, for each season, breeding is limited to a few couples (Nardelli *et al.*, 2015). The Italian breeding population is estimated at 107-132 pairs (BirdLife International, 2017) and it shows wide variations, local inter-annual fluctuations and the establishment of new colonies (Brichetti & Fracasso, 2018). The N Adriatic has only recently been colonized, with the first verified nesting occurring in 2004 (Verza, 2015). Since then, it has only established itself in the basins and mudflats of the fish farms in the northern Po Delta, with a population ranging from 4 to 20 breeding pairs (Scarton *et al.*, 2018). The Collared Pratincole breeds in colonies in open areas such as farmlands, steppes or saltmarshes and brackish wetlands around the Mediterranean and the Middle East (Calvo *et al.*, 1993; Calvo, 1994; Brichetti & Fracasso, 2018; Kayser, 2021).

## METHODS AND STUDY AREA

In accordance with Habitat Directive 92/43/CEE and Birds Directive 2009/147/CE, the Biodiversity Service of Friuli Venezia Giulia Region coordinates the regional mo-

<sup>1</sup> Dipartimento di Matematica e Geoscienze, Università degli Studi di Trieste, Via Weiss 2, 34128, Trieste, Italia.

<sup>2</sup> Dipartimento di Scienze della Vita, Università degli Studi di Trieste, Via Weiss 2, Trieste, Italia.

\* Corresponding author: sponza@units.it

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monitoring program of Natura 2000 habitats and species. The monitoring of the most relevant waterbird breeding populations of conservation concern in the Marano and Grado Lagoon is carried out in collaboration with the University of Trieste, Department of Mathematics and Geosciences. The Marano and Grado Lagoon (from 45°42'14.9"N 13°04'22.0"E to 45°42'14.9"N 13°28'15.8"E; NE Italy) (Fig. 1) is part of the Natura 2000 network, recognized both as Special Area of Conservation (SAC) and Special Protection Area (SPA).

It is one of the most important salty ecosystems at Mediterranean scale (BirdLife International, 2022b) and it is an important wintering and breeding site for waterbirds at international level (Zenatello *et al.*, 2014; Regione Autonoma Friuli Venezia Giulia, 2018). The lagoon encompasses a complex mosaic of ecosystems such as shallow brackish water, mudflats and sandflats without vegetation, mudflats and sandflats colonized by *Salicornia* spp., saltmarshes, coastal sand dunes, reed habitats, extensive fish farms (Cosolo *et al.*, 2015; Regione Autonoma Friuli Venezia Giulia, 2018). The Marano and Grado lagoon is protected towards the sea by a peculiar system of five sandy barrier islands (Martignano, Sant'Andrea, Anfora, d'Orio and Tratauri). The Tratauri Bank, the easternmost of these islands, has an arc-shaped length of around 4 km and a total area of roughly 0.5 km<sup>2</sup>. The western end of the island consists of a recently formed spit that between 2012 and 2021 has grown at a rate of 130 meters per year towards the north-west (Bezzi unpubl. data), characterized by a near total lack of vegetation (Fig. 2). It is mostly

bare sand for at least one kilometer, with a flat form and a maximum elevation of just over one meter above mean sea level. A small morphological step connects the bank to vast intertidal sandy or sandy muddy flats leading to the lagoon.

## RESULTS

On 10<sup>th</sup> June 2022 we observed two adults of Collared Pratincole resting on the western end of Tratauri Bank, inside a protected nesting area, established by the Regional Decree N° 2504 - 12.04.2022. Birds show a suspicious behaviour and therefore, on the basis of the following observations, we detected the nest (Fig. 3).

The nest was a slight depression on the sand and the clutch size was two eggs, which is the modal mean for sandy habitat (Hanane *et al.*, 2010). The Collared Pratincole nested inside a colony composed of Little Tern *Sterna albifrons*, Kentish Plover *Charadrius alexandrinus* and Eurasian Oystercatcher *Haematopus ostralegus*. According on our surveys we can estimate the laying date at the beginning of June. The elevation range of nesting site was about 1 m above sea level. On 22<sup>th</sup> June we observed two chicks fed by adults (Fig. 4). On 4<sup>th</sup> July we observed the pair with alarming behaviour, suggesting the presence of juveniles. On 11<sup>th</sup> July we recorded the presence of the adults and above all one flying juvenile. As reported in Galván (2017), we recorded the marked vigilance and alert behaviour of one partner, probably the male, during all our surveys.

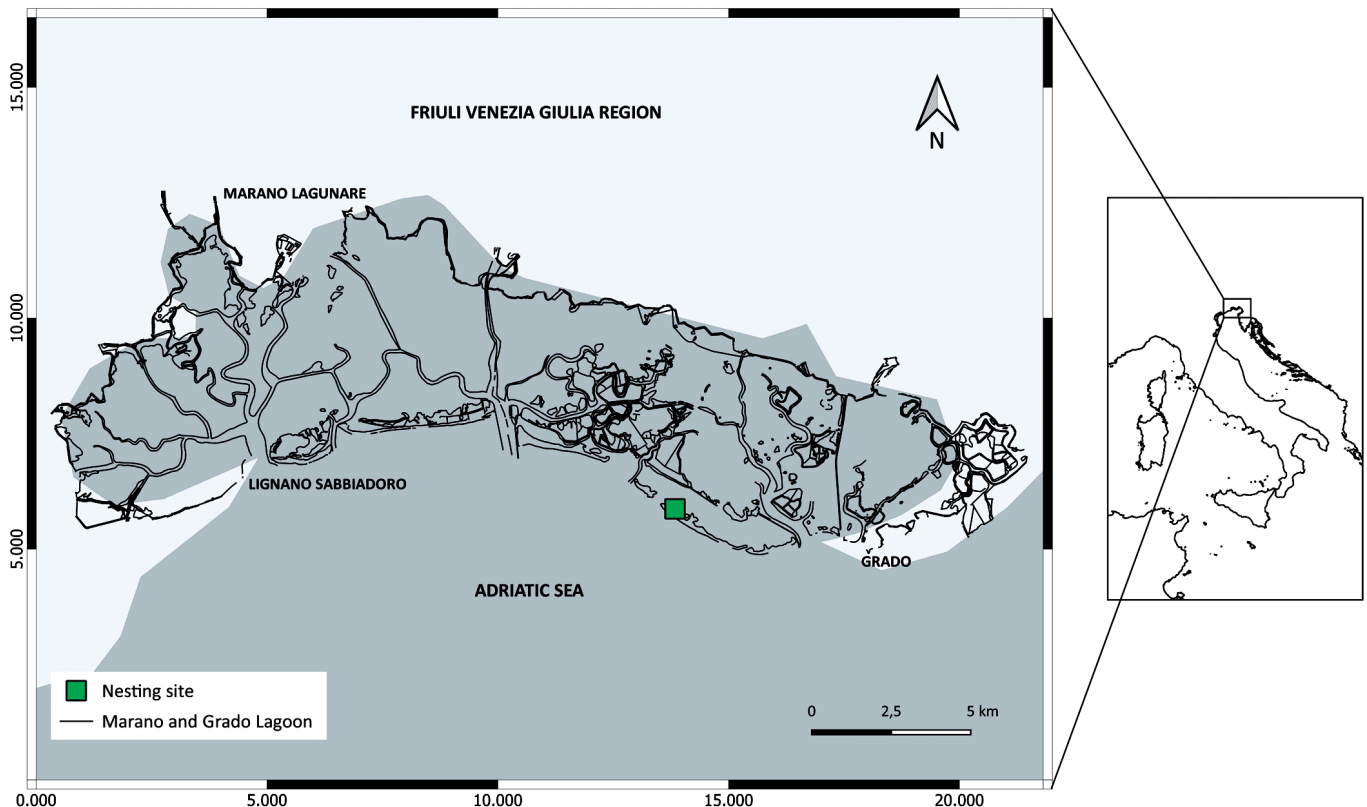


Fig. 1 - Location of the new Collared Pratincole nesting site along the Northern Adriatic coastline in Friuli Venezia Giulia region, Italy. / Nuovo sito di nidificazione di pernice di mare lungo la linea costiera dell'Adriatico settentrionale nella regione Friuli Venezia Giulia.



Fig. 2 - The western end of the Tratauri sandy barrier island. / Tratto finale occidentale del banco sabbioso dei Tratauri. (Photo: / Foto: Università degli Studi di Trieste).



Fig. 3 - The Collared Pratincole nest detected on Tratauri sandy barrier island. / Nido di pernice di mare rinvenuto sul banco sabbioso dei Tratauri. (Photo: / Foto: Università degli Studi di Trieste).



Fig. 4 - The two Collared Pratincole chicks. / I due pulli di pernice di mare. (Photo: / Foto: Università degli Studi di Trieste).

## DISCUSSION

In this note, we document a new successful breeding site for the Collared Pratincole along the northern Adriatic coastline, which represents the first evidence for the Friuli Venezia Giulia region. It is a difficult species to study due to its cryptic nature and small-medium size colonies, hard to locate (Calvo & Vázquez, 1995). This finding confirms the irregular occupation of new reproductive sites (Nardelli *et al.*, 2015; Lockman *et al.*, 2020) and it does not rule out the possibility of previous nesting. In our case, factors influencing the site selection may be: the suitable habitat for raising a brood successfully; the pre-existing shorebirds colony; the low human disturbance due to the regional protected nesting area and the exceptionally favourable weather conditions, in terms of absence of heavy storms, high temperatures and low precipitations rate (ARPA FVG, 2022). The Marano and Grado Lagoon encloses a complex mosaic of habitats (Cosolo *et al.*, 2015; Regione Autonoma Friuli Venezia Giulia, 2018), that play an important role on Collared pratincole foraging behaviour (Calvo, 1996). Individuals of many species may choose their nest sites also on the basis of the presence of other animals, avoiding in this way nest loss (Caro, 2005). There are many advantages in breeding in mixed colonies. Such aggregations can reduce the risk of predation through defensive or dilution mechanisms (Larsen & Grundetjern, 1997; Brown

& Brown, 2001), increased foraging activity (Gil *et al.*, 2018) and shared information on suitable food resources (Bayer, 1982). Moreover, breeding close to colonial species with marked anti-predator mobbing behaviour, e.g. Little Tern, significantly increases nesting success (Rocha *et al.*, 2016). Thus, the breeding colony may have been a significant draw for the species. Human disturbance and recreational activity affect negatively the behaviour and fitness of coastal shorebirds (Gill, 2007; Medeiros *et al.*, 2007; Gómez-Serrano & López-López, 2014; van der Kolk *et al.*, 2022). The foreclosure of the current area to bathers and walkers, and the related signage, has played a key role in reducing human disturbance, underlining the positive impact and the relevance of the conservation measures. The importance of monitoring Collared Pratincole population and conducting research on this species is essential (Calvo & Vázquez, 1995). Several studies have analysed the ecology in its occurrence range (Calvo, 1994; Calvo & Furness, 1995; Goutner, 1997; Tajuelo Zaballos *et al.*, 2003; Vincent-Martin, 2007; Hanane *et al.*, 2010; El Malki *et al.*, 2013; Bensaci *et al.*, 2014; Kiss *et al.*, 2017; Galván, 2017; Kayser, 2021). In Italy the Collared Pratincole has an inadequate state of conservation (Gustin *et al.*, 2019) and it is still poorly investigated from an ecological point of view. It is necessary to promote a long-term targeted monitoring plan for the species at regional and national

scale, focusing on the current status and dynamics of the population. Assessing the drivers of fluctuations and colonization of new breeding sites would be crucial for future management actions.

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