Ecology of the Eurasian Teal *Anas crecca* at the Mekhada marsh (northeast of Algeria)

Soumaya Talai-Harbi, Meriem Rouaiguia, Mouslim Bara, Hana Saker and Moussa Houhamdi

Abstract
Ecology and behavior of the Eurasian teal *Anas crecca* was studied in one of the northeast wetlands of Algeria. Knowing that its status, population dynamic and phenology has been few studied. This work aims to explain the diurnal behavior and the distribution pattern in one of marshes situated in northeast of Algeria (marais de la Mekhada.). The wintering population of this duck reached the maximum effective in second decade of January 298 and 354 individual respectively, without significant difference in number between wintering seasons. The dominant activity in diurnal time budget of this water bird was the feeding (54% and 51% respectively) this result was probably due to availability of foods in the Mekhada march (mainly the abundance of *Chironomidae*). Overall, there was not marked seasonal change in the diurnal time budget of this species.

Keywords: Eurasian teal, wintering population, food availability, the Mekhada marsh, diurnal time budget.

1. Introduction
Butterflies The ecological importance of Algerian wetland complexes lies primarily in the role they fill for migrating birds during the winter quarter [1]. The importance of the complex of wetlands around El Kala in northeast Algeria has long been recognized [2].

The Eurasian teal (*Anas crecca crecca*) is common duck at the Algerian wetlands, during the wintering period this water bird show a characterized gregarious behavior missed in other ducks [3]. In the south bank of Mediterranean basin, the Eurasian teal was few studied and less preoccupied by scientist compared to the threatened species the marbled duck *Marmaronetta angustirostris* which was be studied in Morocco [4-9], in Algeria [10,14,16,17] and in Tunisia [18]. In this topic we studied some aspects of ecology and behavior of the Eurasian teal *Anas crecca crecca*, mainly the abundance, phenology and diurnal time budget in the Mekhada pond situated in north east of Algeria.

2. Study area
The Mekhada marsh is a wetland of 10 000 ha [18], it is characterized by a salt concentration of 4, 6 g/l and mean depth of 1 m [19]. This site is dominated by *Scirpus lacustris* and *Scirpus maritimus*, *Phragmites australis*, *Typha angustifolia*, *Myriophyllum spicatum*, *Nitella sp*, *Alisma plantago aquatica*, *Zanichellia sp*, *Lemna minor*, *Ranunculus baudotii*, *Cynodon dactylon*, *Paspalum distichum*, *Bellis annua* and *Bellis repens* [20].

3. Material and methods
This study was done during the two consecutive wintering period 2012/2013 and 2013/2014 in the Mekhada in order to evaluate the strategy of the wintering and the phenology of the Eurasian teal. First we have counted the size of the population by the estimated method [21, 22], then we have studied the diurnal time budget of this bird by the scan method [23]. The data were assembled then analyzed with a non-parametric tests if the normal distribution was not respected. The Mann Whitney test was used to compare between the number of this duck in 2012/2013 and 2013/2014.

4. Results and discussion
4.1 Abundance
The Eurasian teal was observed in the Mekhada during all wintering season (from November
The evolution of the number of individuals followed a bell shape with a maximum number recorded during January in 2012/2013 (298 duck) and in 2013/2014 (354 duck) (Figure 1). These effects were not significantly different between the wintering periods 2012/2013 and 2013/2014 ($U = 43$, $P = 0.617$).

**4.2 Diurnal time budget**

In the wintering period the diurnal time budget shows a small difference between the two years that is can be neglected. The dominant activity was the feeding accounting for 54% and 51% of the diurnal time budget in 2012/2013 and 2013/2014 respectively. Then followed by the sleeping (20% in 2012/2013 and 19% in 2013/2014) and the swimming which takes 17% in the two years respectively. The preening and the flying take a small proportion in the diurnal time budget of this duck (Figure 2).

The monthly evolution of the activities is mentioned in the Figure 3. All activities of the time budget are observed during all the wintering period without significant difference between years (Figure 3).
5 Discussion

This study is carried to expose diurnal time budget of Eurasian teal Anas crecca in Mekhada march, the number of this species was different to which was reported on previous studies when the maximum number reach 3500 individual [17]. This abrupt drop of number in Mekhada marsh is due to low annual level of precipitations in this area which describe the biological preferences of this species in the colonization of a wetlands in addition the environmental heterogeneity [24, 28, 6].

The diurnal time budget of the Eurasian teal is mainly dominant by the feeding in 2012/2013 and 2013/2014 in the Mekhada marsh, the Mekhada population show a different diurnal behavior than the Camargue population [3]. The dominant activity noted in this topic contradicted the hypothesis that reported “a nocturnal feeding of the teal has been done in the Mekhada marsh” [17].

The species is known to be a nocturnal forager during the wintering season [3], in Mekhada marsh this species has modify its behavior and spent the majority of diurnal period foraging (54% in 2012/2013 and 51% in 2013/2014). This variation of diurnal behavior might be explained by the availability of the Chironomids beside the plants which constitute the mainly diet of the marbled duck [24, 3]. Gauthier-Clerc et al (1998) reported that the ducks (Eurasian teal) exhibits a sleeping vigilance behavior during winter and feeding behavior decrease subsequently during the day, the duck facing important energy requirement in winter during the nocturnal period.

The diurnal feeding observed in the time budget of this water bird contradicted the previous hypothesis which say: “many species of waterfowl feed at night due to avoidance of diurnal predators, food availability and the need to visually select food, thermoregulation” [25, 26].

The feeding activity is observed during all wintering period, this behavior is fundamental for the thermoregulation of the species in the cold temperature and the unfavorable abiotic condition. In addition the success of the reproduction in influenced by the energetic stock of the ducks (especially the Eurasion teal) during the wintering period [27].

In order to conserve this species it’s necessary to elaborate a strategy to survey the Algerian population of the Eurasian teal and compare its requirement in different climatic area (humid sites, high plains and Sahara). In addition monitoring the breeding period of this bird in Mekhada march to discover a nesting evidences and use of putative functional unit may further understood.

6 References


