

- Fathinia, B. & Rastegar-Pouyani, N. 2010. On the species of *Pseudocerastes* (Ophidia: Viperidae) in Iran. *Russian Journal of Herpetology*, 17: 275–279.
- Fathinia, B., Anderson, S.C., Rastegar-Pouyani, N., Jahani, H. & Mohamadi, H. 2009. Notes on the natural history of *Pseudocerastes urarachmoides* (Squamata: Viperidae). *Russian Journal of Herpetology*, 16: 134–138.
- Fathinia, B., Rastegar-Pouyani, N., Rastegar-Pouyani, E., Toodeh-Dehghan, F. & Rajabizadeh, M. 2014. Molecular systematics of the genus *Pseudocerastes* (Ophidia: Viperidae) based on the mitochondrial cytochrome b gene. *Turkish Journal of Zoology*, 38: doi:10.3906/zoo-1308-25.
- Gholamifard, A. & Esmaceli, H.R. 2010. First record and range extension of Field's horned viper, *Pseudocerastes fieldi* Schmidt, 1930 (Squamata: Viperidae), from Fars province, southern Iran. *Turkish Journal of Zoology*, 34: doi:10.3906/zoo-0903-13.
- Heatwole, H. & Davison, E. 1976. A review of caudal luring in snakes with notes on its occurrence in the Saharan sand viper, *Cerastes vipera*. *Herpetologica*, 32: 332–336.
- Lenk, P., Kalyabina, S., Wink, M. & Joger, U. 2001. Evolutionary relationships among the true vipers (Reptilia: Viperidae) inferred from mitochondrial DNA sequences. *Molecular Phylogenetics and Evolution*, 19: 94–104.
- Leviton, A.E., Anderson, S.C., Adler, K. & Minton, S.A. 1992. *Handbook to Middle East Amphibians and Reptiles*. Contributions to Herpetology, No. 8, Society for the Study of Amphibians and Reptiles. Oxford, Ohio, USA.
- Martínez-Freiría, F. 2009. *Biogeografía y ecología de las víboras ibéricas (V. aspis, V. latastei y V. seoanei) en una zona de contacto en el norte peninsular*. Tesis doctoral. Universidad de Salamanca. Salamanca
- Neill, W.T. 1960. The caudal lure of various juvenile snakes. *Quarterly Journal of the Florida Academy of Sciences*, 23:173–200.
- Nilson, G., Andren, C., Ioannidis, Y. & Dimaki, M. 1999. Ecology and conservation of the Milos viper, *Macrovipera schweizeri* (Werner, 1935). *Amphibia-Reptilia*, 20: 355–375.
- Tsairi, H. & Bouskila, A. 2004. Ambush site selection of a desert snake (*Echis coloratus*) at an oasis. *Herpetologica*, 60: 13–23
- Uetz, P. & Hošek, J. 2014. The Reptile Database. <<http://www.reptile-database.org/>> [Accessed: June 16, 2014].
- Wüster, W., Peppin, L., Pook, C.E. & Walker, D.E. 2008. A nesting of vipers: Phylogeny and historical biogeography of the Viperidae (Squamata: Serpentes). *Molecular Phylogenetics and Evolution*, 49: 445–459.

Predation of an adult of *Agama impalearis* by *Falco tinnunculus* in eastern Morocco

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RESUMEN: Se presenta un caso de depredación de cernícalo común (*Falco tinnunculus*) sobre un adulto de agama común (*Agama impalearis*) en el este de Marruecos.

Despite being the most widespread reptile species (Bons & Geniez, 1996), omnipresent and probably the most abundant in Morocco, the natural history of *Agama impalearis* is still partially known. Several studies have shed light on its diet (Znari & El Mouden, 1997a, and references cited therein), reproduction (e.g., Znari & El Mouden, 1997b), ontogeny (El Mouden *et al.*, 1997) or demography (Znari *et al.*, 1998). The list of species which prey and feed on this saurian, given its

wide distribution, abundance, phenology and ecology, must be – presumably – rather long. Nevertheless, references in that regard are lacking or scarce. Pleguezuelos & Fahd (2004) mention *Hemorrhhois hippocrepsis* among ophidians which feed on this agamid. In Schleich *et al.* (1996) only ophidians are listed (*Hemorrhhois algirus*, *Malpolon monspessulanus*, *Psammophis schokari* and *Rhageris moilensis*) and two raptor species (*Buteo rufinus* and *Falco biarmicus*).



Figure 1: Adult female of *F. tinnunculus* perched with an adult of *A. impalearis* recently captured.

Figura 1: Hembra adulta de *F. tinnunculus* posada con un adulto de *A. impalearis* recién capturado.

An observation of predation by another raptor (*Falco tinnunculus*) is presented here. On 30 March 2015 an adult female could be observed and photographed perched on the ground with an adult male of *A. impalearis* between its claws (Figure 1). It left the ground in the presence of the observers, carrying its prey between its inferior extremities up to a nearby hill (Figure 2).

The location of this observation is an esparto grass area (*Stipa tenacissima*) along the 3479 country road that goes through the southwestern part of the Plateau du Rekkam, northeast

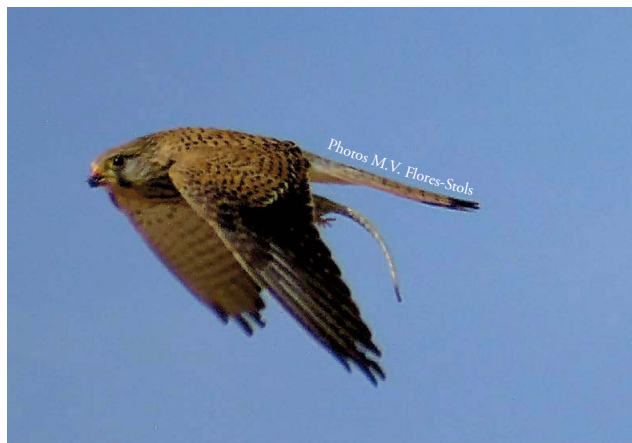


Figure 2: *F. tinnunculus* in full flight with its prey.

Figura 2: *F. tinnunculus* en vuelo con su presa.

from Anoual, in La Oriental province (coord. 32.805110° / 3.254261; 1.535 masl).

Given the abundance of *A. impalearis* in the rocky outcrops of the Plateau du Rekkam, just as in many other habitats throughout the Western Maghreb, where it coincides with the small member of the Falconidae family, also abundant, it is very probable that the saurian may be part of the regular diet of the bird of prey, mostly in its juvenile and subadult forms, easier to capture and handle for a raptor so widespread known as a saurian eater (Martínez-Padilla, 2006).

REFERENCES

- Bons, J. & Geniez, P. 1996. *Amphibiens et reptiles du Maroc (Sahara Occidental compris)*. Atlas Biogéographique. Asociación Herpetológica Española. Barcelona.
- El Mouden, E., Francillon-Vieillot, H., Castanet, J. & Znari, M. 1997. Skeletochronological study of age, maturity, growth and longevity in the North African agamid, *Agama impalearis* Boettger, 1874. *Annales Des Sciences Naturelles*, 18:63–70.
- Martínez-Padilla, J. 2006. Cernicalo vulgar – *Falco tinnunculus*. In: Carrascal, L.M. & Salvador, A. (eds.), *Enciclopedia Virtual de los Vertebrados Españoles*. Museo Nacional de Ciencias Naturales. Madrid. <<http://www.vertebradosibericos.org/>> [Accessed: August 7, 2015].
- Pleguezuelos, J & Fahd, S. 2004. Body size, diet and reproductive ecology of *Coluber hippocrepis* in the Rif (Northern Morocco). *Amphibia-Reptilia*, 25: 287–302.
- Schleich, H.H., Kastle, W. & Kabisch, K. 1996. *Amphibians and Reptiles of North Africa*. Koeltz Scientific Publishers. Koenigstein.
- Znari, M. & El Mouden, E. 1997a. Seasonal changes in the diet of adult and juvenile *Agama impalearis* (lacertilia: Agamidae) in the central Jbilet mountains, Morocco. *Journal of Arid Environments*, 37: 403–412.
- Znari, M. & El Mouden, E. 1997b. Sexual dimorphism, reproductive and fat body cycles in Bibron's agama (*Agama impalearis*, Boettger, 1874) (Sauria: Agamidae). *Herpetologica*, 53: 411–422.
- Znari, M., El Mouden, E. & Boumezzough, A. 1998. Structure et dynamique d'une population d'*Agama impalearis* (Sauria: Agamidae) dans les Jbilet centrales, Maroc. *Revue d'Écologie la Terre et la Vie*, 53: 411–422.