

**Report submitted for Rufford Small Grants for nature conservation project by Anagaw Atickem, Centre for Ecological and Evolutionary Synthesis, University of Oslo**

Email: [anagawam@gmail.com](mailto:anagawam@gmail.com)

**The distribution pattern of the African wolf *Canis lupus lupaster* and confused sympatric canids taxonomy in Ethiopia**

African wolf was first discovered in 2011 at two localities of Ethiopian highlands (Rueness *et al.*, 2011). IUCN provide conservation status for wide range of mammals which has an important implication for prioritizing conservation efforts. Cryptic species however challenged the current conservation strategy. Cryptic species that remains undetected confused with some of the widely distributed species potentially can vanish without a significant effort of conservation. Confused with a Golden jackal *Canis aureus* for instance, the African wolf is categorized as one of the List concern species by IUCN (Jhala and Moehlman, 2008).

With this study, we determine the distribution of the African wolf at larger geographic range of Ethiopia. As taxonomies based on morphological traits alone potentially can lead to misleading guides to phylogenetic distinctions (Avise, 1989), we used molecular genetics study on different canids in Ethiopia. Our study was based on noninvasive technique. Since fecal samples of smaller cats including serval cat (*Leptailurus serval*) are undistinguishable from the Africa wolf pellet samples, we collected many carnivore samples that we suspect to be from African wolf.

In our first objective on the distribution of African wolf, we found the species in all of our survey areas, from lowland as low as 1400 masl from Ethiopian rift valley to 3800 masl in the Ethiopian highland (Fig 1). From our 32 confirmed cases of canids, we did not get a single individual that belongs to the common jackal. In the second African wolf paper published in 2012 (Gaubert *et al.*, 2012), the authors provide photographs of the African wolf and golden jackal at Fig 5 in the paper. No genetic evidence is presented for the golden jackal, and their

argument is solely based on the morphological features. In our research, the African wolf is found in a very striking morphological appearance hard to tell from the morphological features and coloration. While we could not take a photograph of the African wolf from a distance which needs a professional camera, we observed a striking cooler and size variations between African wolf across the Ethiopian range varied from reddish to white and blackish colors.

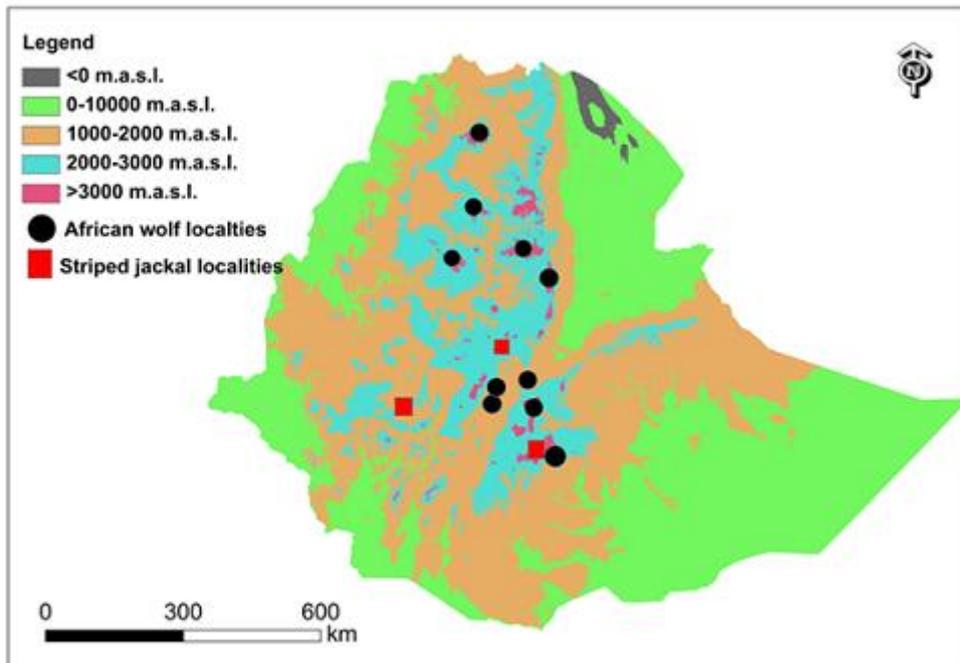


Fig 1. African wolf and striped jackal ranges in Ethiopia.

We get an opportunity for getting a DNA samples from two photographed individuals of African wolf, one from Egypt and the other from Ethiopia in the rift valley, with a totally different phenotypic appearance (Fig 2 a,b). The phenotypic appearance presented by (Gaubert et al., 2012; Fig 5 in the paper) as African wolf and golden jackal, are quite similar when compared to the two individuals documented in this study (Fig 2). Unless genetic evidences are provided, confirming the presence of Golden jackal in Africa is still in a question mark.

The use of morphological features including muzzle shape and tail length and color variations as a taxonomy base of African canids in general is flawed. In the Bale mounains, we found that those which were considered as black backed jackal are in fact a striped jackal *Canis adustus*.



Fig 2. African wolf from Southern Egypt (Fig 2a; photograph by Eric Didner) and Ethiopian Rift Valley (Fig 2b).

Published on blog by Mammal watching.com blog “Very Strange Canid in Bale Mountains Ethiopia ” <http://mammalwatching.wordpress.com/2012/09/11/very-strange-canid-in-bale-mountains-ethiopia-rfi/> the authors posted a photograph which has controversial phenotypic appearance. We get an opportunity to get pellet samples from individual with a similar physical appearance (Fig 3.) We found this animal to be striped jackal from the mitochondrial DNA and my collaborator is working on further work on the nuclear DNA. The phenotypic appearance of our striped jackal in Jima and Bale mountains is however very different from the individual presented in the photograph. All our samples of striped jackal are however grouped together with the striped jackal in Guinea and Benin reported by (Gaubert et al., 2012). It is however distant from the striped jackal in Kenya (Wayne et al., 1997). Weather



Fig 3. Canids grouped to striped jackal in Ethiopia near to Addis Ababa

Cryptic canid do exist in Kenya or uncertainties in gene bank lead this variations needs to be investigated further.

With this research, I acknowledge the lack of Black backed jackal (*Canis mesomelas*) sample.  
[http://www.google.no/imgres?imgurl=http://farm3.staticflickr.com/2659/4130626569\\_c748ee7dc0\\_o.jpg&imgrefurl=http://www.flickr.com/photos/johndale/4130626569/&h=1147&w=1721&sz=40&tbnid=yD-dmhRxbZctQM:&tbnh=90&tbnw=135&zoom=1&usq=\\_a4MtvnZ3kI4pDIHiRVEQTxmEOLc=&docid=Ztg9D6PsvxdGLM&itg=1&sa=X&ei=ngV8UpzxHoHXswb\\_vYCgCw&ved=0C DUQ9QEwAw](http://www.google.no/imgres?imgurl=http://farm3.staticflickr.com/2659/4130626569_c748ee7dc0_o.jpg&imgrefurl=http://www.flickr.com/photos/johndale/4130626569/&h=1147&w=1721&sz=40&tbnid=yD-dmhRxbZctQM:&tbnh=90&tbnw=135&zoom=1&usq=_a4MtvnZ3kI4pDIHiRVEQTxmEOLc=&docid=Ztg9D6PsvxdGLM&itg=1&sa=X&ei=ngV8UpzxHoHXswb_vYCgCw&ved=0C DUQ9QEwAw)

The hunts on pellet samples on these animals are still going on the lowlands of Ethiopia in rift valley and Nechisar National Park. With this research, we focused on the highlands areas and we missed this lowland canid.

In Guassa Mountains, our short field work reveals the African wolf primarily based on the rodents like that of the Ethiopian wolf. However, because African wolf is very wide spread across the regions where rodent density is very low, like that of the rift valley near to the

Abijatta-Shalla National Park, it is likely that the species feed on wide range of food items that needs further investigation.

## References:

- Gaubert, P., Bloch C., Benyacou S., Abdelhamid A., Pagani P., Adeyemi C., Djagoun M.S., Couloux A. , Dufour S. (2012). Reviving the African Wolf *Canis lupus lupaster* in North and West Africa: A Mitochondrial Lineage Ranging More than 6,000 km Wide. PLoS ONE 7(8): e42740. doi:10.1371/journal.pone.0042740.
- Jhala, Y.V. and Moehlman, P.D. 2008. *Canis aureus*. In: IUCN 2013. IUCN Red List of Threatened Species. Version 2013.1. <www.iucnredlist.org>. Downloaded on 05 November 2013.
- Rueness, Eli Knispel; Asmyhr, Maria Gulbrandsen; Sillero-Zubiri, Claudio; Macdonald, David W.; Bekele, Afework; Anagaw Atickem & Stenseth, Nils Chr. (2011). The cryptic African wolf: *Canis aureus lupaster* is not a golden jackal and is not endemic to Egypt. PLOS ONE e16385:1–5.
- Wayne RK, Geffen E, Girman DJ, Koepfli KP, Lau LM, et al. (1997). Molecular systematics of the Canidae. Systematic Biology 46:622–653.