

A Guide to the Forms of *Trioceros jacksonii*



By Petr Necas & Bill Strand
May 2018

Dear Readers,

*This species reference guide is being created to help expose the chameleon community to the complexity of the Jackson's Chameleon. *Trioceros jacksonii* has been a common chameleon for hobbyists to work with. In fact, if you started in the 70's or 80's you most likely started with *T. j. xantholophus* from Kenya. With triceratops horns and live birth, this species is a marvel to study. There are presently three recognized subspecies, but much work has been done to separate out this diverse group. This guide shares some of the work that is in process.*

Much of this information is provided by the study and personal field work of Petr Necas. Petr has been a rich source of information for the chameleon community with a number of books published. His passion for the merging of natural conditions and the captive environment continues to push our husbandry closer to nature.

Please enjoy this exploration of the Jackson's Chameleon as we know the species at this point in time.

Sincerely,

Bill Strand

May 2018



Introduction to the Systematics of *Trioceros jacksonii* (Boulenger, 1896)

The Jackson's Chameleon, *Trioceros jacksonii*, was described in 1896 under the name *Chamaeleo jacksonii* in Ann. Mag. Nat. Hist., London, 17: 376, based on a single male specimen (holotype), collected by Colonel E.J. Jackson and deposited in the British Museum of Natural History in London, under the collection number BMNH 1946.8.21.81. The type locality was given as: "Uganda", but later amended by Mertens (1966) to Kikuyu, near Nairobi, Kenya. Nowadays, it is considered a member of the genus *Trioceros*.

In fact, the Jackson's Chameleon represents a superspecies comprising 8 to 10 separate forms, clearly differing from each other by morphology, size, numbers of horns, patterns, and separation geographically or altitudinally.

So far, forms referring to this superspecies have been found in Kenya and Tanzania only. Besides the erroneous original record from Uganda, it has never been found naturally occurring in any other country in Africa.

Its subspecies, *T. j. xantholophus*, has been introduced to the Hawaii islands where it has spread to several islands and is considered an invasive species. Three established populations exist, based on personal observations (P. Necas), on the US mainland also - one in the suburbs of Miami, Florida, Louisiana, and one in southern California.

There are presently three recognized subspecies of *Trioceros jacksonii*. But when the dust settles, there will be many more. As they have yet to have been officially described, some confusion can be expected when identifying a Jackson's Chameleon.





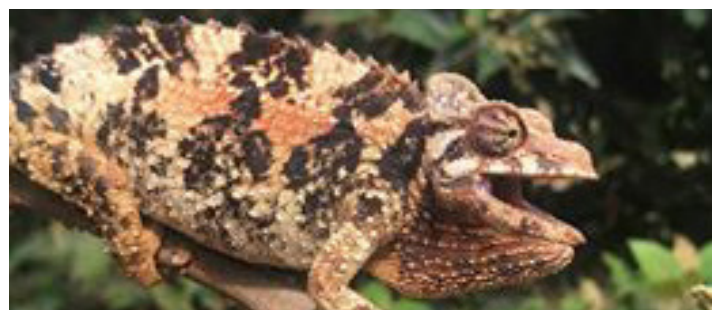
Trioceros jacksonii xantholophus

Common name: Yellow Crested Jackson's Chameleon, Giant Jackson's Chameleon

Taxonomy: Described in 1988 under the name *Chamaeleo jacksonii xantholophus* by Eason, Ferguson & Hebrard in *Copeia*, 1988: 586; fig. 1, based on a single male specimen (holotype) from "3 km south of Meru, Meru district, Kenya", deposited in the collection of National Museum of Kenya under the collection number NMK L/1796.

Range: Eastern foothills of Mt. Kenya (From Chuka to Meru) to Nyambeni range and Maua. This subspecies has been introduced to Hawaii, Florida, Louisiana, and California with varying levels of successful population establishment.

Sexual dimorphism: Males have three horns, females are hornless (very rarely, one horned females are encountered)





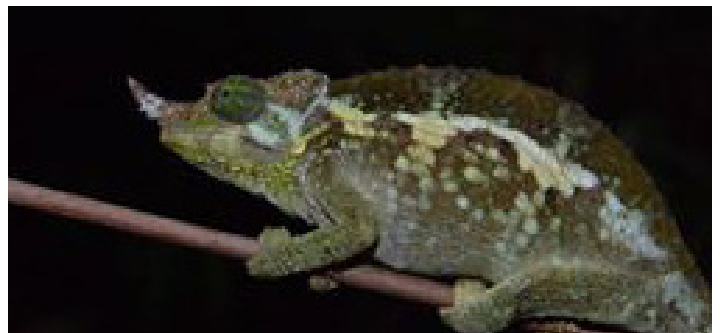
Trioceros jacksonii undescribed form “Machakos Hills”

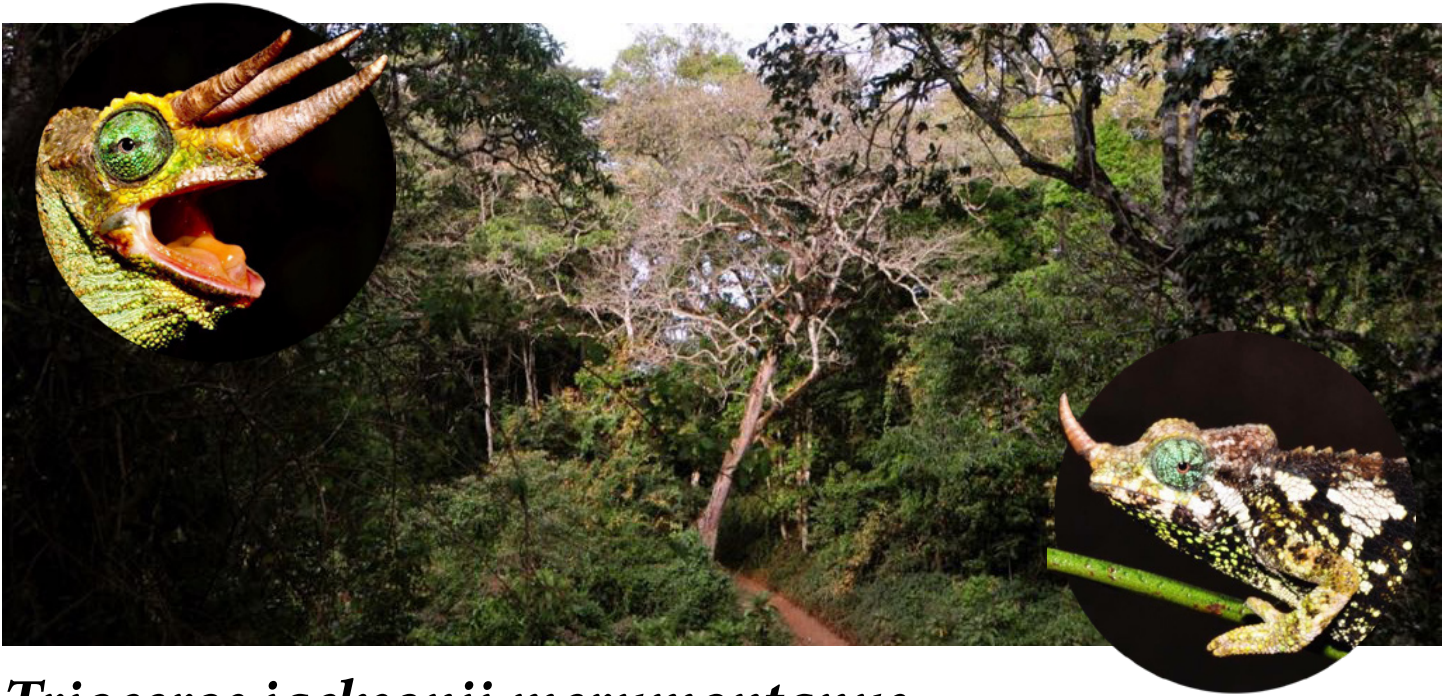
Common name: Kenyan Jackson’s Chameleon, Rainbow Jackson’s Chameleon, T. j. “willegensis”

Taxonomy: This form represents an undescribed subspecies. It is, at this time, officially grouped under *T. j. jacksonii*. This colorful form was introduced in the pet trade under the name T. j. “willegensis”, but this name was neither official nor even grammatically correct.

Range: Machakos Hills and Ol Donyo Sabuk

Sexual dimorphism: Males have three horns, females have three or one





Trioceros jacksonii merumontanus

Common name: Mt. Meru Jackson's Chameleon, Dwarf Jackson's Chameleon

Taxonomy: Described by Rand in 1958 under the name *Chamaeleo jacksoni* var. *merumontana*, in Brevioria, 99: 1, based on a single male specimen (holotype) from: "Laikinoi, near Arusha, Mt. Meru, Arusha district (7500 ft. alt.), Tanzania", deposited in the Museum of Comparative Zoology at Harvard under the collection number MCZ 56152.

This form is headed towards full species status of *Trioceros merumontanus*, as all morphology, geographical isolation, and DNA studies clearly lead to this conclusion.

Range: Mt Meru, Tanzania

Sexual dimorphism: Males have three horns, females typically one (of different shape and length)



Forms of *T. jacksonii* rarely seen and undescribed

Trioceros jacksonii jacksonii

Common name: Nairobi Three-Horned Jackson's Chameleon

Taxonomy: This form can be encountered in the pet market, but is rare. Usually it is the form from Machakos Hills that is brought in due to the vivid colors.

Range: Central Kenyan Highlands from Nairobi to southern & western foothills of Mt Kenya.

Sexual dimorphism: Males have three horns, females three or one



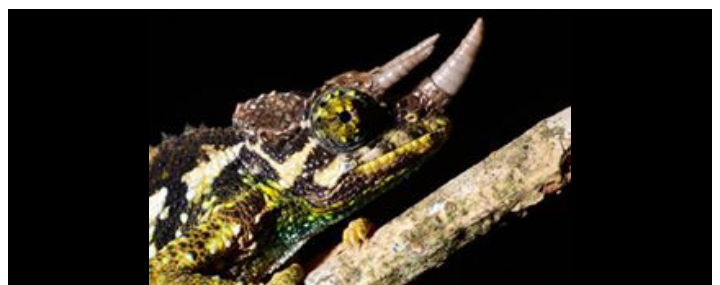
Trioceros jacksonii undescribed form "High altitude Mt. Kenya"

Common name: Dwarf Mt. Kenya Jackson's Chameleon

Taxonomy: This form represents probably an undescribed subspecies, differing from the others by diminutive size and altitudinal isolation.

Range: High altitudes (above 2.000m a.s.l. in a circle around Mt. Kenya)

Sexual dimorphism: Males have three horns, females three or one





***Trioceros jacksonii* undescribed form “North Slopes Mt Kenya”**

Common name: Northern Jackson’s Chameleon

Taxonomy: This form represents possibly an undescribed subspecies, differing from the others by morphology, coloration and possible geographical isolation.

Range: N slopes of Mt. Kenya

Sexual dimorphism: Males have three horns, females three or one



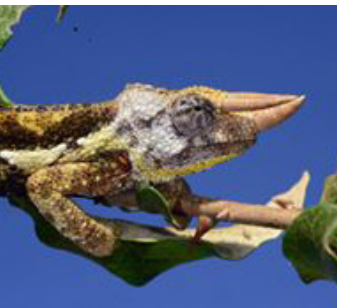
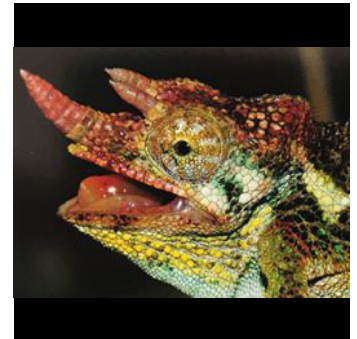
***Trioceros jacksonii* undescribed form “Aberdares”**

Common name: Aberdare Jackson’s Chameleon

Taxonomy: This form represents possibly an undescribed subspecies, differing from the others by morphology, coloration and possible geographical isolation.

Range: Aberdares and Gatamaiyo Forest

Sexual dimorphism: Males have three horns, females three or one



***Trioceros jacksonii* undescribed form “White Cheeks”**

Common name: White Cheeked Jackson’s Chameleon

Taxonomy: This form represents an undescribed subspecies or even species, discovered only in February 2018, differing from the others by morphology, coloration and geographical isolation.

Range: Undisclosed

Sexual dimorphism: Males have three horns, females three or one



***Trioceros jacksonii* undescribed form “Unicorn”**

Common name: Unicorn Jackson’s Chameleon

Taxonomy: This form represents an undescribed subspecies, that has been documented only once on photographs by A. MacKay.

Range: Ol Doniyo Orok (Namanga Hill)

Sexual dimorphism: Males have one horn, females are unknown



***Trioceros jacksonii* undescribed form “Tanganyika”**

Common name: Tanganyika Jackson’s Chameleon

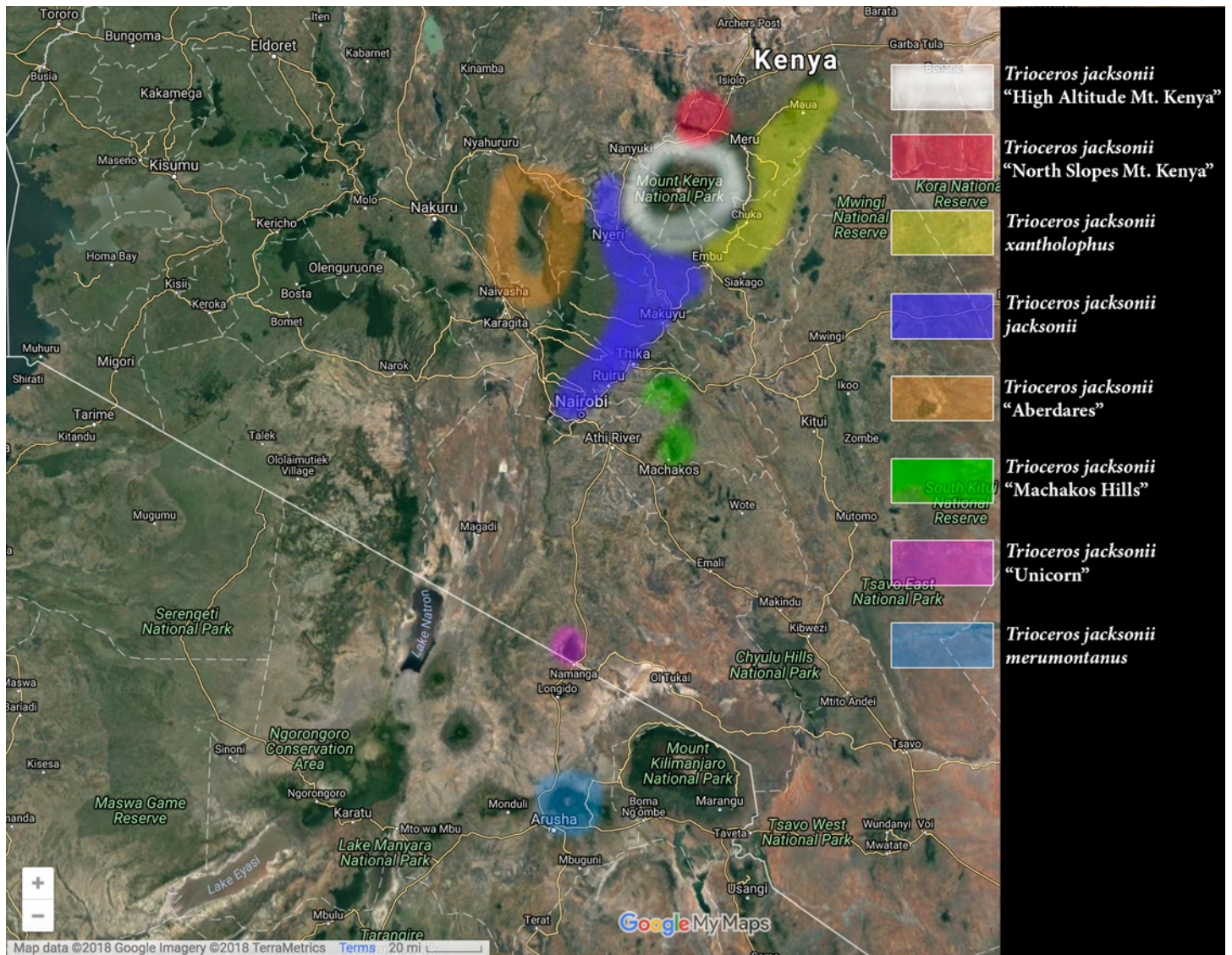
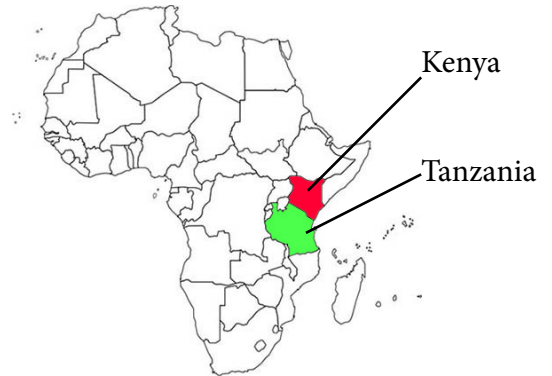
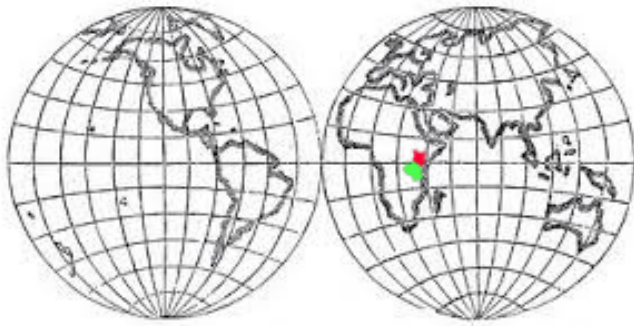
Taxonomy: This form represents probably an undescribed subspecies, that has been documented only based on a single female specimen with atypical head crests and rostral sharp single horn, collected by A.C. Ionides in the 19th century and deposited in the collections of California Academy of Sciences.

Range: S. Tanganyika territory, Tanzania (precise locality unknown)

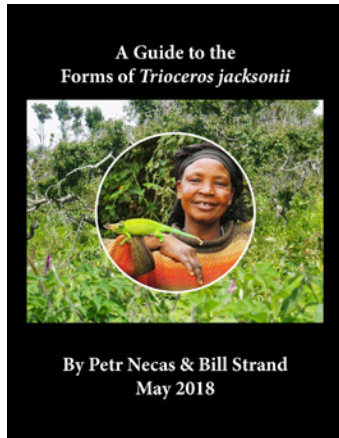
Sexual dimorphism: Males unknown, single known female has a long thin single horn

Distribution of *Trioceros jacksonii*

Trioceros jacksonii is naturally found in Kenya, Africa with a population of *T. j. merumontanus* in Tanzania on Mt. Meru. One form labeled in this guide as *Trioceros jacksonii* “Tanganyika” is represented by a single female specimen that was listed in the 19th century as found much further into Tanzania in the Tanganyika area. The location of this population has yet to be verified and no further specimens have been found.



The authors would like to thank the tight knit group of field scientists involved with studying *Trioceros jacksonii* for generously allowing their images to be used in this guide.



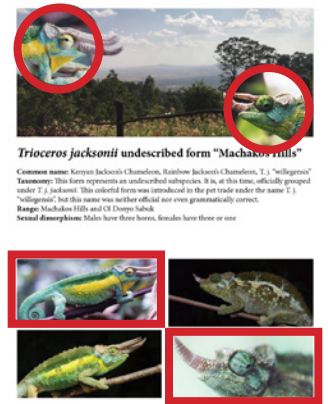
Images courtesy of Petr Necas



Red = Bill Strand
Chameleons by Petr Necas



Red = Bill Strand
All other Images by Petr Necas



Red = Bill Strand
All other Images by Petr Necas



Red = Bill Strand
All other Images by Petr Necas



All Images by Petr Necas



Light Blue = Jan Stipala
Green = Colin Tilbury
Yellow = A. MacKay
Dark Blue = Unknown
Other Images by Petr Necas



Images courtesy of Petr Necas

For continuing research we recommend these excellent books:



Mountain Dragons
by Jan Stipala

This is an amazing pictorial journey of Jan's journey through the Kenyan highlands studying chameleons. This book shows the most variety of *T. jacksonii* of any publication available.

Chameleons of Africa
by Colin Tilbury

An imposing volume of the many species of chameleon on the continent of Africa. Generously filled with full color pictures of species many enthusiasts have not even heard of!



Dear Readers,

*I hope you enjoyed our species/subspecies guide to *Trioceros jacksonii*. Regardless whether the forms of the Jackson's Chameleon superspecies are or are not formally described, they represent single standing and usually isolated genetics directed by evolution to build a more and more divergent gene pool. Some of them are at level of subspecies, while some are assuredly already different species.*

In captivity, it is, therefore, essential to always know the origin of your breeders and which form they belong to, in order to avoid the negative effects of interbreeding. This includes lowered fitness of the offspring, lower survival rate, sterility or limited ability to reproduce, genetic disorders and malformations. In the first generations, the interbred specimens show intermediate traits to the parental forms. In following generations they simply represent lineages without identity and create a polluted unnatural gene pool. All these should be avoided.

Captive management of wild chameleon forms is not only a great resource for joy from a hobby, but if done responsibly, it creates a gene-bank for the future. This is significant for cases, when by a disaster (natural or man-induced), the wild populations would disappear. Then, from well managed captive breeding populations, a reintroduction program can be designed and implemented to save the form for future generations to enjoy. As there is more and more awareness of the value of reforestation, it is conceivable that future generations could learn from our mistakes and natural environments and ranges could be restored. This is my hope.

Petr Necas

May 2018

