

ETHNOZOOLOGICAL RESEARCH ON INVERTEBRATES ON MT. KILIMANJARO, TANZANIA

Claudia Hemp¹

Lehrstuhl für Tierökologie II, Universität Bayreuth, D-95440 Bayreuth, Germany

Abstract. In an ethnozoological field study on the southern slopes of Mt. Kilimanjaro, Tanzania, among the Bantu tribe of the Chagga, the vernacular names for over 1300 invertebrate species, mainly insects, were investigated. The number of vernacular names for invertebrates was lowest in the Afroalpine zone and the montane forest. Far more names were found in the plantation belt. Savanna species also have many local names because they are well known to the Chagga cultivators. The greatest diversity of Chagga terms is found in the Saltatoria, with 31 and 24 names for Coleoptera and Heteroptera respectively. Among the Hymenoptera 19 names were registered, of which 12 applied just to ants. In contrast, fewer names for Lepidoptera were found, with only 5 names for the whole order. Names used only for one specific group of insects are often to be found for parasites and pests. *Accepted 7 November 2001.*

Key words: Ethnozoology, invertebrates, insects, Mt. Kilimanjaro, Wachagga.

INTRODUCTION

Mt. Kilimanjaro is located 300 km south of the equator in Tanzania on the border with Kenya between 2°45' and 3°25' S and 37°00' and 37°43' E. The mountain rises from about 700 m on flat savanna to nearly 6000 m. Due to different precipitation regimes and the changing climatic conditions with elevation, clearly distinguishable vegetation zones are apparent.

The colline zone of the hot and dry savanna stretches around the mountain base from 700 to about 1000 m. Most areas are used as maize, bean, and sunflower fields, in West Kilimanjaro often as wheat fields. East of Moshi rice is planted, in the plains south of Moshi sugar plantations replace a formerly forested area. Bigger mammals are almost extinct around the mountain, except for a small corridor on the northern slopes where a certain exchange of wildlife from the bordering Amboseli National Park still can be observed (Grimshaw 1996). However, the arthropod fauna is very diverse in the huge monocultures of maize, millet, beans and other crops. Various pests like grasshoppers, bugs or beetles occasionally cause severe problems.

A population maximum of over 500 persons per sq km is reached in the submontane zone which lies between 1000 and 1800 m. In the so-called "Chagga

home gardens" a great variety of crops are cultivated in a multi-layer system. Beneath shadetrees, which often comprise the only remnants of the indigenous vegetation, coffee and banana trees are planted. Under the dense cover of coffee and bananas, yams, beans, sweet potatoes and other field crops grow, while creepers like passion fruits and *Telfairia pedata* reach the utmost tops of the trees. Thus the plantation belt reveals a very rich inventory of arthropods, which often become obvious only when they damage field crops.

Livestock of the Chagga are cattle, swine, goats, and chickens. These are ideal hosts for a variety of parasites, which sometimes also attack humans as well. Many Chagga terms identify precisely those molesting insects, while bigger and more colorful insects like butterflies are only grouped roughly, being considered mostly unimportant to the average life.

Steeper areas on the southern slopes are used as meadows, which are extraordinarily diverse in invertebrates. Children and women spend part of the day cutting grass and herbs for their livestock. Thus old women especially possess an excellent knowledge of the fauna occurring there.

Nearly every patch in the plantation belt is irrigated by one or more irrigation canals. These canals first appear high in the montane forest and are taken there from small rivers. Although there are quite a

¹ e-mail: andreas.hemp@uni-bayreuth.de

number of typical freshwater insects there are hardly any Chagga terms for them.

The plantation belt ends in the area of Old Moshi at an altitude of about 1700 m and is bordered by the so-called half-mile forest strip which serves for timber. Thus *Eucalyptus*, cypress and pine trees are planted in some places, but due to irregular forestry practices and uncontrolled cutting huge patches of high-altitude meadows with a diverse invertebrate life mingle with the heavily disturbed forest.

With increasing altitude the park-like area changes into more closed forest communities until at about 1800-1900 m indigenous montane forest with apparently few insects prevails. The upper forest border lies above Old Moshi at 2700 m, fringing the moorlands, and is characterized by tussock grasses and giant lobelias. The insect life in this zone is again more apparent due to, e.g., large tenebrionid beetles and the colorful grasshoppers of the genus *Parasphena*. Above 3100 m the arthropod fauna becomes sparse, and the vegetation is limited to scattered *Helichrysum* bushes. At 4200 m the nival zone starts (Hemp *et al.* 1999b).

MATERIAL AND METHODS

Invertebrates were collected in savanna habitats around the southern slopes, in the plantation belt directly surrounding the Chagga, the montane forest above Kidia with its various clearings, as well as the moorland zone at altitudes of 2700–3000 m. Most of the specimens were preserved in alcohol. However, in many cases it was necessary to present living material to the informant. This was especially the case with grasshoppers and locusts, which lose color when stored in alcohol. In this important insect group people differentiate between similar species on the basis of color. Also ants had to be shown as living material because the Chagga name these insects mainly on grounds of how they behave. Field trips with elderly Chagga proved to be the best way to find out Chagga names for the many ant species because habitat was also of value for naming these hymenopterans. Additionally, a box of glass and gauze was used for presenting certain captured arthropods to as many Chagga as possible.

Sufficient literature exists to enable the identification of orthopterans and butterflies. The identity of species in these insect orders was confirmed in the insect collections of the National Museums of Kenya, Nairobi and the Natural History Museum,

London. Species of other groups were either identified with the help of specialists or sent to other entomologists at various museums.

To cover as many species as possible, the TAFORI (Tanzania Forest Research Institute) insect collection in Moshi was visited with Chagga informants. This collection focuses mainly on forest pests like beetles and moths, which explains the high species numbers of these groups investigated in this study (see Table 1).

For the nomenclature of the Chagga terms and the full species list of collected animals see Hemp & Winter (1999) and Hemp *et al.* (1999a).

TABLE 1: Numbers of invertebrate species investigated and Chagga names found.

	Species number	Chagga names
Scolecida	5	2
Mollusca	>10	2
Annelida	4	2
Arachnida	>30	4
Crustacea	3	2
Diplopoda, Chilopoda	>10	2
Insecta	1267	
Zygentoma	1	1
Ephemeroptera	1	1
Odonata	2	2
Orthoptera	127	36
Caelifera	68	30
Ensifera	43	8
Mantodea	7	1
Phasmatodea	3	2
Blattodea	6	4
Isoptera	2	3
Dermaptera	4	2
Mallophaga	1	1
Anoplura	2	1
Hemiptera	47	19
Homoptera	24	5
Neuroptera	7	6
Coleoptera	651	24
Lepidoptera	169	5
Diptera	38	13
Siphonaptera	2	1
Hymenoptera	62	19

RESULTS

The criteria of Chagga names for invertebrates generally reflect the following:

- whether they are parasites, dangerous / poisonous
- conspicuous characters (e.g., smell or noise)
- their pest status
- their palatability
- their body shape
- conspicuous habits

Human parasites. Many names in the Chagga language stand for various parasites, which attack both domestic animals and humans. Roundworms (*kiodyé'*) and tapeworms (*njolà'*) carry their own names as well as ectoparasites like lice (*nda'*) or fleas (*sawà'*). Even bird lice (*titiiri'*) cause problems if chickens and humans live too close together. Hard ticks (*ichei'*) are common on domestic animals but also attack humans. Most Chagga are hardly aware that various diseases can be transmitted by hard ticks, especially among domestic animals.

Jigger fleas (*Tunga penetrans*) cause serious problems in some areas of Mt. Kilimanjaro. Especially children are often heavily attacked by the so-called *fusa*. Deformed toes result from infected nails and even blood-poisoning is recorded from wounds caused by jigger fleas.

Harmful arthropods. Some arthropods are feared because of the problems they can cause when they come into contact with human skin. Huge flying insects with a loud buzz and painful sting are classified under the name *mdahà'*. *Mdahà'*-insects mostly belong to the hymenopteran families Vespidae, Scoliidæ, Sphecidae, and Pompilidae which indeed may penetrate the human skin with their sting. Also bigger assassin bugs (Reduviidae, Hemiptera) can inflict painful bites with their beaks and thus belong to *mdahà'*-insects. Although harmless, other large bugs with noisy humming are regarded as *mdahà'*. Coreidae and even dragonflies belong to this group.

The name *ndasà-kìwì'*, which means "bites at two ends", comprises animals which seem to be dangerous at both ends, such as the harmless earwigs. The name *kiásanà'* seems to be a second expression not only for earwigs but also for the more harmful rove beetle genus *Paederus*, especially the Nairobi fly *Paederus sabaeus*, whose secretion released by abdominal glands irritate the skin and lead to long-lasting itching wounds.

Ndasà-kìwì' is also a valid expression for worm-like blind snakes (Tylophidae, see also Hemp et al. 1999a) which are burrowers and whose head is not easily distinguishable from its tail.

Spiders are an ever-present group but are hardly dangerous to humans. There is only one name for all spiders and other arachnids such as harvestmen and solifugs: *mbuwù'*. However, one species, the big baboon spider of the genus *Pterinochilus* (Theraphosidae) is feared because of its painful bite which is said to cause fever for some days. Confrontations with this baboon spider mostly occur at night when the hunting arachnids hide among household items or in furniture gaps and are touched inadvertently.

Scorpions are night-hunting animals of the savanna around the foothills of Mt. Kilimanjaro, hardly occurring above 1000 m. Thus they do not belong to the immediate surrounding of the Chagga, who cultivate their fields at altitudes mostly above 1100 m. Nevertheless they have their own name – *kisuwà'* – probably reflecting the fact that their sting is very painful and even children are warned of the danger of handling these arachnids.

Some species of the order Diptera are not only a bother but also dangerous because they are vectors of some of the most fatal tropical diseases. Transmitters of the deadly malaria parasites are mosquitos of the *Anopheles gambiae* complex in Africa (Skaife 1994). Although culicids are irritating blood suckers they have the same name as various arachnids: *mbuwù'*. The expression *kipanù'* stands for the culicid species *Aedes aegypti* which is omnipresent in the plantation belt on Mt. Kilimanjaro; this species transmits yellow fever in other parts of Africa. Another severe disease 'sleeping sickness' is transmitted by another blood-sucking dipteran, the tsetse fly *Glossina morsitans*, known as *ichong'à'* in the Chagga language. While the tsetse fly inflicts painful bites only in the savanna, several species of horse flies (*Haematopoda* sp., Tabanidae) occur at different altitudes on the southern slopes of Mt. Kilimanjaro and are all regarded as *ichong'à'*.

Ants are very prominent insects everywhere from the savanna to the montane rain forest. Many names exist for this group of hymenopterans, probably because of their different appearance and importance to humans.

Various *Dorylus* species, the so-called driver ants or *mbomé* in the Chagga language, form long lines of many thousand individuals. These are guarded by

soldiers possessing large mandibles capable of causing painful bites. Especially children are taught impressive lessons about avoiding these aggressive insects. The reproductives of the driver ants, the sausage flies, are often attracted to light and thus form another category of insects (*kiuwuúiná*). Small yellow or light brown myrmicine ants of the genera *Phleidole* and *Tetramorium* (*susá*) turn up in thousands whenever there is food left open in the houses and thus are present in almost every kitchen. In the evening hours when many people rest in front of their houses, harmless formicine ants on long legs run in circles on pathways and verandahs, throwing curious shadows on the ground while busily searching for food. These species of the genus *Camponotus* are thus well-known to the Chagga, and are called *ikará-kàrá*.

Agricultural pests. The widespread Chagga homegardens on the southern slopes of Mt. Kilimanjaro are attacked by variety of pests. Especially among the Heteroptera agricultural pests are frequent. *Mvià* is a term used for insects which suck the sap of plants. Below trees and bushes the sap exuded from some cicadas, cercopodids, flatids, fulgorids, plataspids, and coreids often drops onto the leaves and ground, leaving the whole area sticky. All insects causing this phenomenon are united under the name *mvià*. Aphids (*kimambà*) and treehoppers (Membracidae, *ikrupu*) have their own names, while species from the bug families Coreidae, Lygaeidae, Pyrrhocoridae, Pentatomidae, and Reduviidae are classified for their color pattern and smell. The names *mafutá-mbòchò* (*mafudá* = fat, *irimbòchò* = beetle) and *imamdashù* are used for bugs that release bad smelling repellents when disturbed, like many stink bugs (Pentatomidae). The stink bug *Nezara viridula* is a pest in vegetable gardens but is named after its bad smell *mafutá-mbòchò*. The expression *kimatrà* refers to the colorful patterns of many pentatomids and assassin bugs, while many beetle-shaped bugs (Pentatomidae, Coreidae, Plataspidae) are just called *irimbòchò* (= beetle). *Kirimbò* and *mbuhúdí* are special terms for bug species attacking vegetables and other cultivated plants.

Although many beetle species attack vegetable gardens or destroy timber only a few expressions exist for pests in the order Coleoptera. The snout beetle *Sitophilus zeamais* is a serious pest all over the world because it lives in food stocks, especially in maize. The Chagga name *sikànìà* for this species is taken from the term Scania (truck brand name). Many species harmful to timber and even living wood are recorded

from the beetle family Cerambycidae. As in the English (Long-horned Beetle) and German languages ("Bock"käfer) the Chagga name these beetles for their long antennae *irimbòchò' lya mèmbe'*, which means "horned beetle".

Although the order Lepidoptera contains a great number of colorful and huge species, few names exist for butterflies and moths in the Chagga language. For most lepidopteran species the common term *itan-dáwári* is used, translatable as "butterfly" or "moth." Only species of the noctuid genus *Spodoptera*, which are severe pests, are differentiated as *ohonjó*.

The locusts *Cyrtacanthacris tatarica* and *Acanthacris ruficornis ruficornis*, generally known as *nzihè* but also named *itaràbò*, damage coffee leaves in years when they reach high abundances (Ritchie 1936).

Palatable insects. A great number of names exist for grasshoppers and locusts. Orthopterans played an important nutritional role in former times. Even today children go for grasshoppers that have a pleasant taste. In 1997, after the El Niño rains, swarms of the tettigoniid *Ruspolia differens* developed, invading the plantation belt on the southern slopes of Mt. Kilimanjaro. Children were observed hunting for these cone-headed grasshopper species, eating them fresh. Due to the economic importance of saltatorians as nutrition, a fine linguistic differentiation has developed to distinguish palatable species from poisonous or inedible ones. The typical "edible" grasshopper is called *ndatàri* in the Chagga language. *Ndatàri* species are generally up to 3 cm long and belong to the families Eumastacidae and Lentulidae, and in the Acrididae the subfamilies Acridinae, Catantopinae, Coptacridinae, Eyprepocnemidinae, and Oedipodinae. The chemically protected and thus inedible members of the family Pyrgomorphidae (Wickler & Seibr 1985) are colorful, often flightless and of a sluggish nature. Most of them are called *itangà* or *mtangà*. Pyrgomorphid species with well developed tegmen and alae, like the *Phymateus* and *Taphronota* species, are named *mtangàwàsi* or *mkawàsi*. The widespread pyrgomorphid *Atractomorpha acutipennis*, sometimes a pest in rice fields in the savanna, in shape and color resembles "edible" species like meadow grasshoppers (Conocephalinae) or bush katydids (Phaneropterinae). Perhaps due to that fact, this species has its own name, *irengo*, to simplify recognition. *Nzihè* generally defines edible grasshoppers and locusts of more than about 3 cm body size. Two names, *senènè* and *olindó*, are used for greenish, rather long

tettigoniids such as winged *Conocephalus* species, *Horatosphaga heteromorpha*, *Megalotheca longiceps*, *Diogena denticulata*, *Eurycorypha*, *Melidia* species, and the pseudophyllid *Acauloplax exigua*. However, although green in color, tettigoniids with long legs and a cricket-like appearance, such as *Monticolaria kili-mandjarica* and *Conocephalus (Xiphidion)* species with reduced wings, carry the name for crickets *njechéri'*. The Hetrodinae, with many spines on the pronotum, common in crop fields in the savanna, are known as *kühútsú'*. The name *kühútsú'* also appears in the compound name *itandáwúri' kühútsú'*, which is applied to some moth families (Sphingidae, Lasiocampidae, and Pyralidae), indicating perhaps potential pests.

After heavy rainfalls termites produce thousands of offspring, which are popular food among the Chagga, especially the children. These insects, called *ngumbí'*, are collected and then fried. Termite workers and soldiers, named *msorá'*, are known to every Chagga for the damage they do to wood.

The huge whitish larvae of some long-horned beetles are said to be a tasty food for children and are eaten raw. The stem-boring larvae of the cerambycids *Anthores leuconotus* and *Chlorophorus carinatus*, common pests of coffee (Ritchie 1936), reach sizes of up to 4–5 cm and are called *ndokò'*. On the other hand beetle larvae living in the ground are distinguished as *itambàchá'*. Ones belonging to the family Scarabaeidae are collected and serve as chicken food.

Non-phyletic groups. Besides phylogenetically based names, such as “beetle” (*irimbòchò'*), “butterfly” or “moth” (*itandáwúri'*), “wasp” (*kifi'*), or “fly” (*nzi'*), certain names in the Chagga language unite insects from completely different orders because of conspicuous habits. The same grouping is applied to plant species as well. Here one conspicuous character is used to combine plants from completely different families under one name (see Hemp 1999).

Insects which “live in the dirt” are called *kivirò'*. Belonging to this group are many small beetles which crawl on the earth, such as ant-like flower beetles (Anthicidae), nymphs of ant-lions in their pits, and aradid bugs camouflaged with earth particles. In the evening a number of different insects are attracted to light. Many of these *kiwuwúnà'* are only known to the Chagga while flying around lamps and are inconspicuous during daytime. Thus many moth species belong to this group, as do small beetles and the reproductives of the driver ants (*Dorylus* sp.). Minute insects blown unintentionally into the eye and caus-

ing irritations are *kiwuhámia-risó'*. Especially small rove beetles can cause pain to the conjunctiva of the eye because of released secretion from their abdominal glands.

Clan-dependent expressions. Pronunciation of a number of vernacular names varies from clan to clan. Often the differences are minor, and are expressed by slight variations in intonation and spelling, e.g., *otu'*, *iotu'*, and *olotù'* for some beetle families. However sometimes completely different names are used for one and the same group of insects, such as the use of *ndatàrì'* and *kisesè'* for certain grasshoppers.

SYNOPSIS

Species with a similar outer appearance are often grouped together, without regard for their size, their dangerousness, or whether they are pests or useful. This is similar to European language groups which are phylogenetically related and have their own expressions, like Coleoptera, Diptera, Hymenoptera, or Lepidoptera. These terms usually unite a wide variety of insects with a similar outer appearance. Among these groups names exist which specify special families, genera, or even species based on different behavior or because they are of economic importance. For the Coleoptera, besides the name *irimbòchò'*, 14 other terms for special beetle families are known, e.g., for fireflies (*mnyang'ò'*) or whirligig beetles (*kichoóndì'* = small ship). Although the Lepidoptera are a conspicuous group rich in species, comparatively few terms exist in the Chagga language for these insects. Apart from the general name *itandáwúri'* only 6 other expressions are used for moth and butterfly families and species. The Diptera mostly regarded as *nzi'* contain many species that are bothersome bloodsuckers and vectors of diseases. Twelve other terms are used for different dipterans. The majority of the order Hymenoptera are regarded as *kifi'*. However many terms specify single ant species (15 names) and bees (honey bee: *njuki'*, meliponula bee: *nyorì'*). Probably due to their importance as food, grasshoppers and locusts are very precisely distinguished. Besides some general names for the different groups, such as *ndatàrì'* for grasshoppers, *nzi'hè'* for locusts, or *senènè'* and *olindó'* for katydids, about 30 other names define special families, genera and species. The Hemiptera and Homoptera contain families with extremely different external shapes and this is reflected in the variety of names for this group. Since these orders contain many pests, 24 names are known alone for these insects.

Parasites are grouped under own names, as are apparent groups of gastropods, articulates and chelicerats. Gastropods are divided into two groups: snails and slugs. Worms (Lumbricidae) and leeches also have their own names. For chelicerats only two names are used, distinguishing scorpions on the one hand and spiders, daddy longlegs, and solifugs on the other. From the huge order of the Acari only one name for the hard ticks was found (see Table 1).

ACKNOWLEDGMENTS

Between November 1995 and April 1996 studies on the local names of invertebrates were carried out as part of the project "Identity in Africa" in the *Sonderforschungsbereich 214* of Bayreuth University, Germany. I am most grateful to the chief entomologist of the TAFORI, Moshi, for his cooperation. I am indebted to the Head of the Department of Invertebrate Zoology, Dr. K. Maes, and the staff of the entomological collection of the National Museum of Kenya, Nairobi, for support. Thanks to Mr. J. Conrad, Missouri, for revising the manuscript and the specialists Mr. M. Ackland, Oxon (Anthomyiidae), H. Devriese, Brüssel (Tetrigidae), Mr. A. Freidberg, Tel Aviv (Diptera), Dr. R. Gerstmeier, München (Cleridae), Dr. N. Jago, London (Acridoidea), R. Jocque, Tervuren (Araneae), Dr. J. Londt, Pietermoritzburg (Asilidae), Dr. M. de Meyet, Tervuren (Diptera), Mr. P. Paterson, Nairobi (Apidae), Dr. R. Ragge, London (Tettigoni-

idae), and Mr. A. E. Whittington, Edinburgh (Platystomatidae) for identifying invertebrate material. I also thank Mr. W. Schawaller, Stuttgart, Dr. Häuser, Senckenberg, Prof. Fiedler, Bayreuth, and Dr. W. A. Nässig, Senckenberg for checking species lists.

REFERENCES

- Grimshaw, J.M. 1996. Aspects of the ecology and biogeography of the forests of the northern slope of Mt. Kilimanjaro, Tanzania. Thesis, University of Oxford, UK.
- Hemp, A. 1999. An ethnobotanical study on Mt. Kilimanjaro. *Ecotropica* 5: 147–165.
- Hemp, C., & J.C. Winter. 1999. Ethnozoologische Feldforschung am Kilimanjaro. *Arthropoda. Bayreuther Forum Ökologie* 64: 167–199.
- Hemp, C., Winrer, J.C., & A. Scheuerlein. 1999a. Ethnozoologische Feldforschung am Kilimanjaro. *Säugetiere, Vögel, Reptilien und Amphibien. Bayreuther Forum Ökologie* 64: 149–165.
- Hemp, A., Hemp, C., & J.C. Winter. 1999b. Der Kilimanjaro – Lebensräume zwischen tropischer Hitze und Gletschereis. *Geoökologische und ethnologische Forschungen im Chagga-Land. Natur und Mensch*: 5–28.
- Ritchie, J.M. 1936. Report of the entomologist: 1935. *Rep. Dep. Agric. Tanganyika* 1935: 95–103.
- Skaife, S.H. 1994. African insect life. Cape Town.
- Wickler, W. & U. Seibt. 1985. Reproductive behaviour in *Zonocerus elegans* (Orthoptera: Pyrgomorphidae) with special reference to nuptial gift guarding. *Z. Tierpsychol.* 69: 203–223.

APPENDIX. List of Chagga-Names for species of Arthropoda

Swah.: Swahili term, Engl.: English term; ?: name questionable. Species numbers in brackets.

Group / species	Chagga-Name	English names
Scolecida		
Nemathelminthes, Ascaroidea (3)		roundworms
<i>Ascaris lumbricoides</i> Linné	<i>kiodyé'</i>	
<i>Neoscaris vitulorum</i> Goeze	<i>kiodyé'</i>	
<i>Toxascaris</i> sp.	<i>kiodyé'</i>	
Plathelminthes, Cestodes (2)		
<i>Taenia solium</i> Linné	<i>njolá`</i>	tape worms
<i>Taenia saginata</i> Goeze	<i>njolá`</i>	
Mollusca /Gastropoda (>10)		
various families with houses	<i>ngochó'</i>	snails
species without houses, e.g., Arionidae,	<i>ikorú`</i>	slugs
Limacidae		
Articulata		
Annelida (2)		
Lumbricidae	<i>mbilili'</i>	earthworms
Glossiphoniidae (Hirundinea)	<i>mnuurá'</i>	leeches
Arthropoda		
Chelicerata / Arachnida		
Scorpiones (1)	<i>kisuwá`</i>	scorpions
Araneae (>20)	<i>mbuwú`</i>	spiders
Opiliones (1)	<i>mbuwú`</i>	daddy longlegs
Solifugae (1)	<i>mbuwú`</i>	
Acari (>10)		mites and ticks
Ixodidae	<i>icheri'</i>	hard ticks
<i>Eutrombidium</i> sp. (Trombidiidae)	<i>icheri'lyá mbúru`</i>	
Mandibulata / Crustacea		
Decapoda (2)	<i>ngalá'</i>	decapods
Isopoda (1)	<i>nyangá`</i>	isopods
Antennata (Tracheata)		
Chilopoda / Scolopendridae (1)		centipedes
<i>Scolopendra</i> sp.	<i>ndalá`</i>	
Progoncata (Diplopoda) (ca. 10)	<i>ichongólóló`</i>	
Insecta (Hexapoda) (1267)		
Apterygota		
Zygentoma (1)		
<i>Machiloides malagassus</i> Silv.	<i>mnorá'</i>	
Pterygota		
Ephemeroptera (1)	<i>kimmorá'</i>	mayflies
Odonata (2)		dragonflies and damselflies
Lestidae (1)		spread-winged damselflies
<i>Lestes</i> sp.	<i>mdabhá`, kerengende?</i>	
Libellulidae (1)		common skimmers
<i>Orthetrum</i> sp.	<i>kerengende?, dudumisi (kisu.)</i>	
Orthoptera (127)		
Caelifera (68)		
Tetrigidae (8)	<i>ndatári`</i>	pygmy grasshoppers
Acrididae (45)		short-horned grasshoppers
Acridinae (14)	<i>ndatári`</i>	slant-faced grasshoppers
<i>Acrida</i> sp. (2)	<i>olindó`, ibuwá?, senènè`, ochingó'</i>	
<i>Acrida</i> sp. (nymph)	<i>ndatári`, olindó`</i>	
<i>Paracinema tricolor</i> (Thunberg)	<i>ndatári`, indi', senènè`</i>	
<i>Truxalis burtti</i> Dirsh	<i>senènè`</i>	

Group / species	Chagga-Name	English names
Calliptaminae (3)		
<i>Acorypha</i> sp. (3)	<i>msešà', nzihè', iring' ò'</i>	
Catantopinae (8)	<i>ndatàri'</i>	
<i>Eupropacris vana</i> (Karsch)	<i>kikombá-mùwala'</i>	
Coptacridinae (4)	<i>ndatàri'</i>	
Cyrtacantharidinae (3)		
<i>Acanthacris ruficornis ruficornis</i> (Fabricius)	<i>ifaámàyé', itaràhò', nzihè'</i>	
<i>Cyrtacantharis tatarica tatarica</i> (Linné)	<i>nzhè', itaràhò', itaráfùò', kilalátsò'</i>	
<i>Ornithacris cyanea</i> (Stoll)	<i>imamkuyu', orikòngò'</i>	
Eyprepocnemidinae (5)	<i>ndatàri', msešà', nzihè'</i>	
Oedipodinae (17)		band-winged grasshoppers
<i>Acrotylus</i> sp. (5)	<i>ndatàri'</i>	
<i>Aiolopus</i> sp. (3)	<i>ndatàri'</i>	
<i>Gastrimargus</i> sp. (3)	<i>nzhè', ifaámàyé', inyeri', kimamtsaná'</i>	
<i>Heteropternis</i> sp. (3)	<i>ndatàri'</i>	
<i>Humbe tenuicornis</i> Schaum	<i>orimòngò', orikòngò'</i>	
<i>Morphacris fasciata</i> Thunberg	<i>ndatàri'</i>	
<i>Trilophidia conturbata</i> (Walker)	<i>ndatàri'</i>	
Oxyinae (1)	<i>ndatàri'</i>	
Eumastacidae (Thericleinae) (4)	<i>ndatàri'</i>	eumastacids
<i>Plagiotriptus hippiscus</i> Gerstaecker	<i>orikòngò'</i>	
Lentulidae (2)	<i>ndatàri'</i>	
Pyrgomorphidae (9)	<i>itangà', imtangà', imamtangà', mtangà', mtangàwàsi'</i>	
<i>Atractomorpha acutipennis</i> (I. Bolivar)	<i>irengo</i>	
<i>Chrotogonus hemipterus</i> Schaum	<i>ndatàri', njechéri'</i>	
Ensifera (43)		
Tettigoniidae (27)		long-horned grasshoppers
Conocephalinae (11)		meadow grasshoppers
<i>Anthraxes</i> sp. (2)	<i>senènè', olindó'</i>	
<i>Conocephalus</i> sp. (3)	<i>njechéri'</i>	
<i>Conocephalus (Xiphidion)</i> sp. (3)	<i>senènè', olindó'</i>	
Heterodinae (4)	<i>njechéri', ndatàri'</i>	
Phaneropterinae (13)	<i>kiibútsü'</i>	
<i>Horatosphaga heteromorpha</i> (Karsch) (nymph)	<i>senènè', olindó'</i>	bush and round-headed katydids
<i>Monticolaria kilimandjarica</i> Sjöstedt	<i>njonò'</i>	
Pseudophyllinae (2)	<i>imlai', njechéri'</i>	
Gryllacrididae (1)	<i>senènè', olindó'</i>	true katydids
Gryllidae (15)	<i>njechéri'</i>	camel crickets
Gryllinae (12)	<i>njechéri'</i>	field and house crickets
Gryllotalpinae (3)	<i>kirukà'</i>	mole crickets
Mantodea (12)	<i>kimanjüo-küdu'</i>	mantids
Phasmatodea (3)	<i>kinatsü', kimanjüo-küdu'</i>	walkingsticks
Blattodea (6)	<i>itarüwò', injè'</i>	cockroaches
<i>Deropeltis barbeyana</i> Saussure (female)	<i>itimbolo?, irimbòchò'</i>	
Isoptera (2)		termites
<i>Odontotermes badius</i> group, soldier, workers	<i>msorá'</i>	
<i>Odontotermes badius</i> group, reproductives	<i>ngumbí'</i>	
<i>Macrotermes</i> sp., termitaria	<i>sohú'</i>	
Dermaptera		earwigs
Forficulidae (4)	<i>kiasánà', ndasá-küví'</i>	common earwigs
Mallophaga (1)		chewing lice
Menoponidae (1)		bird lice
<i>Meopon gallinae</i> Linné	<i>titiri'</i>	
Anoplura (2)		sucking lice
Pediculidae (2)		human lice

Group / species	Chagga-Name	English names
<i>Pediculus capitis</i> De Geer	<i>nda'</i>	head louse
<i>Pediculus humanus</i> Linné	<i>nda'</i>	body louse
Hemiptera (47)		bugs
Aradidae (1)	<i>kivirò', (shi)kidutsa</i>	flat or fungus bugs
Belostomatidae (1)	<i>mdahà', irukà'</i>	giant water bugs
Coreidae (9)	<i>mdahà', kirimbò', irimbòchò', mbuhùdú', mvià'', mdahà', isolonya', irumünü'</i>	leaf-footed bugs
Gerridae (1)	<i>kisoróvi'</i>	water striders
Lygaeidae (4)	<i>isolonya', irombocha, kirimbò', mdahà'</i>	
Nepidae (1)	<i>mdahà', irukà'</i>	waterscorpions
Pentatomidae (23)	<i>imamdashù', kimatirà', kirimbò', kirehéréhé', mvià'', irimbòchò', mafutà-mbòchò'</i>	stink bugs
Plataspidae (3)	<i>irimbòchò', mvià'', kirimbò', imamdashù'</i>	
Pyrrhocoridae (2)	<i>imamdashù', kimaà-sürú', mdahà', kirimbò'</i>	red bugs or stainers
Reduviidae (2)	<i>kimaà-sürú', kimatirà', irimbòchà', iringòchì'</i>	assassin bugs
Homoptera (25)		
Aphididae (4)	<i>kimambà'</i>	aphids
Cercopidae (5)	<i>mvià'', irombòchà lya nùkà'</i>	frohoppers or spittlebugs
Cicadidae (6)	<i>mvià''</i>	cicadas
Flatidae (1)	<i>mvià', ilangameto?</i>	flatid planthoppers
Fulgoridae (4)	<i>mvià', ilangameto?</i>	fulgorid planthoppers
Membracidae (5)	<i>ikrupu</i>	treehoppers
Neuroptera (7)		
Chrysopidae (1)	<i>itandáwùri'</i>	green lacewings
Mantispidae (4)	<i>itandáwùri'</i>	mantidflies
Myrmeleontidae (2)		antlions
adult	<i>idangàshà', isidi-memba, mdahà'</i>	
larva	<i>kidutsà', kivirò'</i>	
Coleoptera (651)		beetles
Alleculidae (1)	<i>irimbòchò'</i>	comb-clawed beetles
Anobiidae (1)	<i>irimbòchò'</i>	death-watch beetles
Anthicidae (6)	<i>kivirò'</i>	antlike flower beetles
Anthribidae (12)	<i>irimbòchò'</i>	fungus weevils
Bostrychidae (33)	<i>irimbòchò', kivirò', olotù', mkokè'</i>	branch-and-twig borers
Brenthidae (10)	<i>irimbòchò'</i>	primitive weevils
Bruchidae (4)	<i>irimbòchò'</i>	seed beetles
Buprestidae (28)	<i>irimbòchò', otu', olotù'</i>	metallic wood-boring beetles
Cantharidae (1)	<i>irimbòchò'</i>	soldier beetles
Carabidae (21)	<i>irimbòchò'</i>	ground beetles
Cerambycidae (177)	<i>irimbòchò', irimbòchò lya mèmbe'</i>	long-horned beetles
Chrysomelidae (41)	<i>irimbòchò', kirimbòchò', kiwuhàmia-risó'</i>	leaf beetles
Cleridae (12)	<i>irimbòchò'</i>	checkered beetles
Coccinellidae (22)	<i>(shi)irimbòchò'</i>	ladybird beetles
Colydiidae (7)	<i>irimbòchò'</i>	cylindrical bark beetles
Corylophidae (1)	<i>irimbòchò'</i>	minute fungus beetles
Cucujidae (2)	<i>irimbòchò', kivirò'</i>	flat bark beetles
Curculionidae (68)	<i>irimbòchò'</i>	snout beetles
<i>Sitophilus zeamais</i> Motschulsky	<i>irimbòchò', sikànà' (engl.), kivirò'</i>	
Dasytidae (3)	<i>irimbòchò'</i>	

Group / species	Chagga-Name	English names
Elateridae (7)	<i>olotù', otu', iotu'</i>	click beetles
Endomychidae (2)	<i>irimböchè'</i>	handsome fungus beetles
Erotylidae (1)	<i>irimböchè'</i>	pleasing fungus beetles
Gyrinidae (2)	<i>kichoòndì'</i>	whirligig beetles
Histeridae (8)	<i>irimböchè'</i>	hister beetles
Lagriidae (3)	<i>irimböchè'</i>	long-jointed bark beetles
Lampyridae (2)	<i>mnyangò'</i>	fireflies
Lucanidae (6)	<i>irimböchè', otu'</i>	stag beetles
Lycidae (3)	<i>irimböchè', trombocha, kipandà-nìndà', kifurì'</i>	net-winged beetles
Lycidae (5)	<i>irimböchè'</i>	powder-post beetles
Lymexylonidae (3)	<i>irimböchè', kiasànà'</i>	ship-timber beetles
Meloidae (14)	<i>irimböchè', otu'</i>	blister beetles
Mordellidae (1)	<i>irimböchè', otu'</i>	tumbling flower beetles
Nitidulidae (2)	<i>irimböchè'</i>	sap beetles
Passalidae (6)	<i>olotù', otu'</i>	passalid beetles
Passandridae (1)	<i>irimböchè'</i>	
Phalacridae (3)	<i>irimböchè'</i>	shining mold beetles
Platypodidae (22)	<i>irimböchè'</i>	pinhole borers
Sagridae (2)	<i>irimböchè', njechéri' (Männchen)</i>	
Scarabacidae (55)	<i>irimböchè'</i>	scarah beetles
Scolytidae (28)	<i>irimböchè', kiviirò'</i>	bark-and-ambrosia beetles
Staphylinidae (2)	<i>kiasànà', ndasá-kùwi', kilondó kyà wáfurù', kiuwúbámia-risó'</i>	rove beetles
Tenebrionidae (19)	<i>irimböchè', otu'</i>	darkling beetles
Trogostidae (4)	<i>olotù', otu', irimböchè'</i>	bark-gnawing beetles
Lepidoptera (170)		butterflies and moths
Arctiidae (11)	<i>itandáwùri', kiuwuwínà'</i>	tiger moths
Bombycidae (1)	<i>itandáwùri', kiuwuwínà'</i>	silkworm moths
Brahmeidae (1)	<i>itandáwùri', ikongálimá'</i>	
Cossidae (3)	<i>itandáwùri', kiuwuwínà'</i>	carpenter and leopard moths
Danaidae (1)	<i>itandáwùri'</i>	milkweed butterflies
Eupterotidae (Zanolidae) (4)	<i>itandáwùri', ikongálimá'</i>	zanolid moths
Geometridae (1)	<i>itandáwùri', ikongálimá'</i>	geometer moths
Hesperiidae (1)	<i>itandáwùri'</i>	common skippers
Lasiocampidae (17)	<i>itandáwùri', itandáwùri' kiihútsù'</i>	tent caterpillars and lappet moths
Limacodidae (2)	<i>itandáwùri', kiuwuwínà'</i>	slug caterpillars
Lycenidae (6)	<i>itandáwùri'</i>	gossamer-winged butterflies
Lymantriidae (Liparidae) (6)	<i>itandáwùri', kiuwuwínà'</i>	tussock moths
Metarbelidae (1)	<i>itandáwùri', imchadó'</i>	
Noctuidae (11)	<i>itandáwùri'</i>	noctuid moths
Sphodoptera sp. (2)	<i>ohonyó'</i>	
Notodontidae (5)	<i>itandáwùri', kiuwuwínà'</i>	prominents
Nymphalidae (21)	<i>itandáwùri', ikungú'</i>	brush-footed butterflies
Papilionidae (6)	<i>itandáwùri'</i>	swallowtails
Pieridae (8)	<i>itandáwùri'</i>	whites, sulphurs and orange-tips
Pyralidae (1)	<i>itandáwùri', itandáwùri' kiihútsù'</i>	pyralid moths
Saturniidae (30)	<i>itandáwùri', ikongálimá'</i>	giant silkworm moths
Scsiidac (2)	<i>itandáwùri', irimböchà', iringòchi'</i>	clear-winged moths
Sphingidae (26)	<i>itandáwùri', itandáwùri' kiihútsù'</i>	hawk moths
Syntomidae (Ctenuchidae) (1)	<i>itandáwùri', kiuwuwínà'</i>	ctenuchid moths
Zygaenidae (3)	<i>itandáwùri', kiuwuwínà'</i>	smoky moths
Diptera (38)		flies
Anthomyiidae (1)		anthomyiid flies
<i>Anthomyia benguellae</i> Malloch	<i>mbungò'</i>	
Asilidae (1)	<i>kifi''</i>	robber flies

Group / species	Chagga-Name	English names
Chloropidae (2)	<i>nzi'</i>	frit flies
Culicidae (5)	<i>mbuwù'</i>	mosquitoes
<i>Aedes</i> sp.	<i>kipamù'</i>	yellow fever mosquito
<i>Anopheles</i> sp.	<i>mbuwù'</i>	
Diopsidae (4)	<i>nzi'</i> , <i>ikarà-kàrà'</i>	stalk-eyed flies
Drosophilidae (1)	<i>surú'</i>	potomace flies
Glossinidae (1)		
<i>Glossina morsitans</i> Westwood	<i>ichong'à'</i>	tsetse flie
Muscidae (7)	<i>nzi'</i>	muscid flies
Oritidae (1)	<i>nzi'</i>	picture-winged flies
Phoridae (1)	<i>nzi'</i>	humpbacked flies
Psychodidae (1)	<i>surú yà chòròní'</i>	moth and sand flies
Syrphidae (4)	<i>nzi'</i>	syrphid flies
Tabanidae (7)	<i>ichong'à'</i>	horse and deer flies
Tachynidae (3)	<i>irimböchò'</i>	tachinid flies
Tephritidae (2)	<i>nzi'</i>	fruit flies
Tipulidae (2)		crane flies
<i>Nephrotoma</i> sp.	<i>kiuwuwùná'</i> , <i>mbuwù'</i> , <i>kimdabà'</i> , <i>idangàsà' lyà nji'</i>	
Siphonaptera (2)		fleas
Pulicidae (2)		common fleas
<i>Pulex irritans</i> Linné	<i>sawà'</i>	human flea
<i>Ctenocephalides felis</i> Bouché	<i>sawà'</i>	cat flea
Hymenoptera (73)		
Apidae (10)		digger bees, carpenter bees, bumble bees, honey bees
<i>Allodape</i> sp.	<i>irimböchò'</i> , <i>kifi'</i>	allodapine bee
<i>Apis mellifera monticola</i> Latteille	<i>njuki'</i>	Kilimanjaro honey bee
<i>Megachile antinorii</i> Grip.	<i>irimböchò'</i> , <i>kifi'</i>	leafcutter bee
<i>Meliponula</i> sp.	<i>losi'</i> , <i>nyori'</i>	
<i>Xylocopa</i> sp. (6)	<i>irimböchò'</i>	carpenter bees
Anthophoridae (2)		
Anthophorinae (1)	<i>irimböchò'</i>	digger bee
Nomadinae (1)	<i>inunù'</i> , <i>kifi'</i>	cuckoo bee
Chalcididae (3)	<i>inunù'</i> , <i>kifi'</i>	chalcidids
Eurytomidae (1)	<i>kifi'</i>	seed chalcids
Formicidae (31)		ants
<i>Aenictus</i> sp.	<i>mrakò'</i>	
<i>Camponotus</i> sp. (7)	<i>iring'o'</i> , <i>iruti-ruti'</i> , <i>irumunù'</i> , <i>ilondò'</i>	
<i>Crematogaster</i> sp.	<i>mambò'</i> , <i>sangù'</i>	cocktail ant
<i>Dorylus belvolus</i> Linné (male reproductive)	<i>kiuwuwùná'</i>	
<i>Dorylus</i> sp. (3) (soldier, worker)	<i>mbomé'</i> , <i>mrakò'</i>	
<i>Myrmica</i> sp. (3)	<i>sangù'</i>	
<i>Oecophylla smaragdina</i> Fabricius	<i>ikarà-kàrà'</i>	
<i>Pachycondyla analis</i> Latreille	<i>ilondò'</i>	
<i>Pheidole</i> sp.	<i>susá'</i>	brown house ant
<i>Plectroctena mandibularis</i> Smith	<i>ilondò'</i> , <i>ilondò-londò'</i>	
<i>Polyrbachis militaris</i> Fabricius	<i>inunù'</i>	
<i>Tetramorium</i> sp.	<i>susá'</i>	
Ichneumonidae (12)	<i>kifi'</i>	ichneumons
Mutillidae (2)	<i>inunù'</i> , <i>kifi'</i>	velvet ants
Pompilidae (1)	<i>mdabà'</i> , <i>kifi'</i>	spider wasps
Scoliidae (1)	<i>kifi'</i> , <i>mdabà'</i> , <i>nyori'</i>	scoliid wasps
Sphécidae (5)	<i>mdabà'</i> , <i>kifi'</i> , <i>kimdabà'</i>	sphécid wasps
Vespidae (5)	<i>mdabà'</i> , <i>kifi'</i> , <i>kifi' kyá mbòbò'</i>	vespid wasps
larvae	<i>ianá'</i>	