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A biodiversity inventory of selected leaf beetles (chrysomelidae) associated with crops and ornamental plants in southwestern Nigeria

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Abstract
This study collected and inventorised Leaf Beetles, investigated their host plants and distribution of each species within southwestern Nigeria. It also prepared and updated the checklist of the beetles within the study area with a view to documenting these insect species in the region. The inventory of Leaf Beetles and their host plants within southwestern region of Nigeria was carried out in wet and dry seasons between May 2014 and August 2018. Leaf Beetles were collected on crops and ornamental plants from 22 sampling sites within the six states of south western Nigeria (Lagos, Ogun, Oyo, Osun, Ekiti and Ondo states). The sampling sites were selected within the mangrove forest, rainforest and the derived savannah zones of the region. Collected specimens were carefully documented, preserved and identified at Obafemi Awolowo University, Ile-Ife, Nigeria. The diagnostic characters of the adults of all the species collected were examined under the dissecting microscope (400x). The results showed that a total of 37 species of Leaf Beetles in 25 genera were recorded on crops and ornamental plants belonging to 45 families. This study classified all the Leaf Beetles present in the region into six subfamilies, eight new genera and twenty species that were not recorded in the old checklist were subsequently added to the existing checklist of Leaf Beetles in Nigeria. Hence this study updated the existing checklist of Leaf Beetles in Southwestern Nigeria with twenty species and additional eight new genera.

Keywords: biodiversity, checklist, host plants, leaf beetle, species

Introduction
Medler (1980) [16] carried out a survey of insects in Nigeria. In his project titled Insects of Nigeria: Checklist and Bibliography, two thousand five hundred and thirty nine species in two hundred and twenty two genera were recorded. Chrysomelidae fauna in Southwestern Nigeria is relatively poorly studied. Only a small number of faunistic papers have been published for the group as a whole or some of its subfamilies inhabiting Southwestern Nigeria. Most attention has been paid to leaf beetle species that have a certain economic importance like *Callosobruchus maculatus* (Ofuya, 1987; Lale and Kolo, 1998; Lephale *et al*., 2012; Oke and Olajire, 2012; Augustine *et al*., 2016) [19, 14, 15, 20, 5]. Pigeon pea leaf beetle *Leptualaca fassicollis* was also recorded in Nigeria (Dialoke, 2013) [9]. Leaf beetle was reported among the Insect pests that were limiting the production of pigeon pea in Nigeria and black Leaf Beetles (*Leptualaca fassicollis*) showed relative abundance of 25-40% during April and July planting in 2009 and 2010 as reported by Dialoke (2013) [9]. Guideline on practical solution to the management of Chrysomelidae was repoted on okra by Adesina (2013). It was also reported that Leaf Beetles are the most destructive insect pests on okra. The two pest are *Podagrica uniforma* (Jac.) and *P. Sjostedti* (Coleoptera: Chrysomelidae) which are responsible of heavy defoliation (Odebiyi, 1980) [18]. Important yield losses are also reported in Nigeria and Ghana by these two leaf beetle species (Ahmed *et al*., 2006). These two insect pests have also been reported to transmit the okra mosaic virus which causes significant yield losses (Van Lommel *et al*., 1996) [21].

The infestation of plants by Leaf Beetles in southwestern Nigeria is high and needs to make available all the necessary information on the pest that will lead to good control of the Leaf Beetle infestation in the study area. Productivity and product quality of both crops and ornamental plants in the region is low due to Leaf Beetles infestation. The gap created by the paucity of data on the diversity, number of species, distribution and host plants of Leaf Beetles in the region are major constraints to the management of this pest. Biodiversity surveys of Leaf Beetles in Nigeria were often limited to certain agricultural plants like cowpea, okra and pigeon pea. There is therefore, the need to study all Leaf Beetles infested crops and ornamental plants in the region with a view to update the existing Leaf Beetles checklist in the study area.

Materials and Methods
This study covered six states in Nigeria and was carried out in southwestern Nigeria, which is situated approximately between longitudes 002˚49′ E and 006˚20′ E of the Greenwich Meridian, and latitudes 06˚00′ N and 08˚50′ N of the Equator (Figs. 1). The six states of southwestern Nigeria are Lagos, Ogun, Oyo, Osun, Ekiti and Ondo. Southwestern Nigeria is large and random sample was made to represent the entire populations of Leaf Beetles present in the region. Sampling sites were randomly selected based on their vegetation types. It was done in a way that sites with similar vegetation were not severally repeated. Sites with similar ecological pattern but different types of ornamental plants were repeated. This work is based mainly on the field collection study and investigation of bibliography on

southwestern Nigerian Leaf Beetles reported by researchers in the past from the tertiary institutions and research institutes within the southwestern Nigeria which include Cocoa Research Institute of Nigeria (CRIN), Ibadan; International Institute of Tropical Agriculture (IITA), Oyo Road, Ibadan; Nigerian Institute of Horticulture (NIHORT), Ibadan; Obafemi Awolowo University, Ile-Ife; Federal University of Technology, Akure and Ladoke Akintola University of Technology, Ogbomoso.

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Leaf Beetles were collected in both dry and wet seasons starting from 2014 to 2018. The insects were collected from vegetation within the ecological zones in south western Nigeria. This study made use of both direct and indirect methods of insect collection. The method of hand catching was most frequently used in order to record the specific plant host of the insect collected. This method has proven to be the most suitable because it pays great attention to trophic relationships between insects and plants that they feed on. Small sized Leaf Beetles were collected by aspirators. Entomological nets were used to capture the species that can quickly escape by flying away. Beat sheet shaking method was used for collecting species that occur on woody and shrubby plants. Yellow pan traps were deployed along a trail in plantations to collect species that are near the ground surface while Malaize traps were set in plantations to collect active flying species. The small sized Leaf Beetles were examined under a dissecting microscope at high magnification so as to reveal minute details of their parts. Specimen identification were performed using the keys Kimoto and Gressit of 1979 [11], Gressitt and Kimoto of 1961 [13] and Warchalowski of 2003 [22]. The collected, preserved materials were deposited in the insectariums of Natural History Museum, Obafemi Awolowo University, Ile-Ife, Nigeria. The data was analysed by using Paleontological statistics software package (PAST).

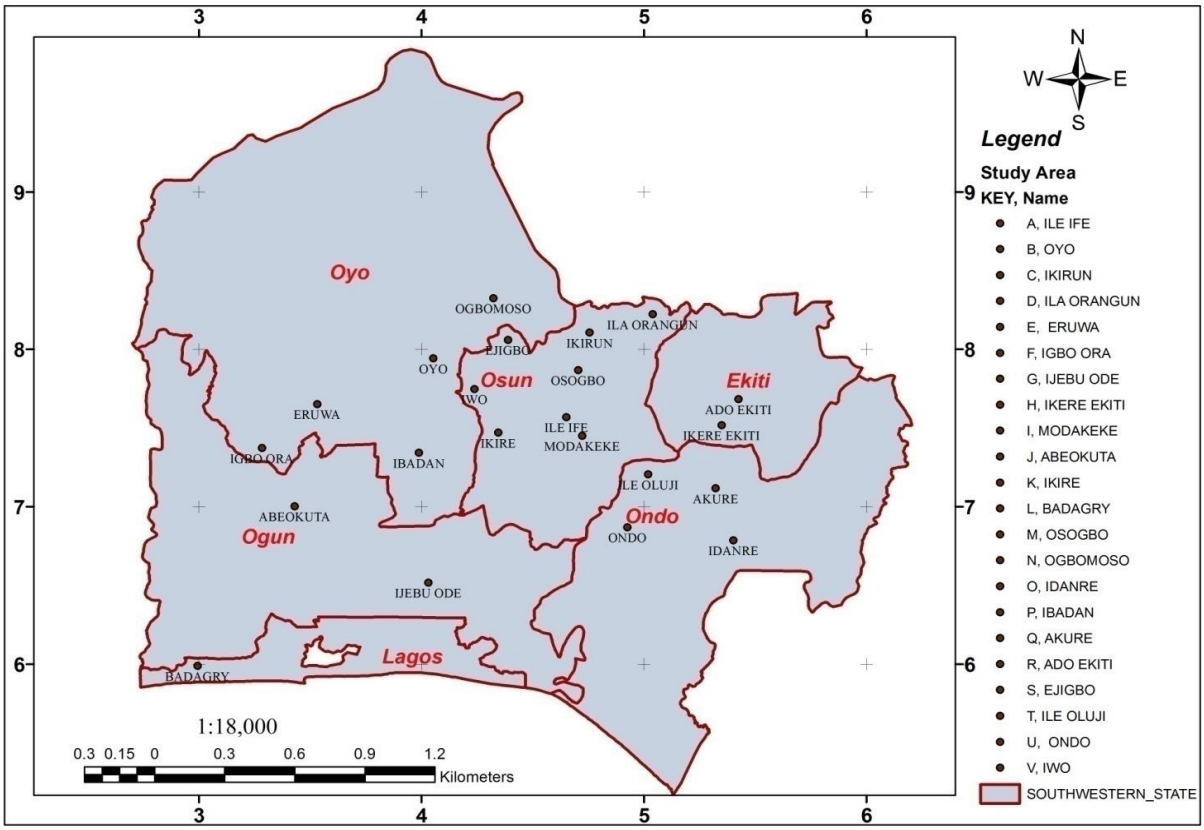

Fig 3: Map of study area showing localities in this study

Results and Discussion

Checklist, Host Plants and Distribution of Leaf Beetles in southwestern Nigeria

Chrysomelidae Latreille, 1802

Subfamily Bruchinae Latreille, 1802

***Acanthoscelides* Schilsky 1905: 95**

Acanthoscelides obtectus Say 1831: 1 (Bruchus).

Distribution: Ile-Ife, Oyo, Ikere Ekiti, Modakeke, Ikire, Osogbo, Ogbomoso, Ibadan, Akure, Ile-Oluji, Ondo, Iwo

Host plant families: Acanthaceae, Araceae, Caesalpinaceae, Labiatae, Malvaceae, Myrtaceae, Punicaceae, Rosaceae, Rutaceae,

***Bruchidius* Schilsky, 1905**

B. imbricornis Panzer, 1795

Distribution: Ile-Ife, Oyo, Ikirun. Igbo Ora, Modakeke, Badagry, Osogbo, Ogbomoso, Idanre, Ibadan, Akure, Ondo, Ile-Oluji, Ikere Ekiti, Ejigbo, Iwo

Host plant families: Annonaceae: Annona senegalensis

***B. olivaceus Germar*, 1824: Anton (2010)**

Distribution: Ile-Ife, Ikire, Osogbo, Ogbomoso, Ibadan, Ado Ekiti, Ondo

Host plant families: Amaranthaceae, Apocynaceae, Bignoniaceae, Caesalpinaceae, Cucurbitaceae, Euphorbiaceae, Lobeliaceae, Malvaceae, Puniaceae, Solanaceae, Sterculiaceae.

***Bruchus* Linnaeus 1767: 604**
B. loti Paykull, 1800
Distribution: Ile-Ife, Oyo, Osogbo, Ogbomoso, Idanre, Ibadan, Akure, Ado Ekiti, Ondo, Ikere Ekiti
Host plant families: Caricaceae, Convulvulaceae, Malvaceae, Ulmaceae
B. rufimanus (Boheman) 1833: 58
Distribution: Ile-Ife, Oyo, Ikirun. Ila Orangun, Eruwa, Igbo Ora, Ijebu Ode, Ikire, Osogbo, Ogbomoso, Idanre, Ibadan, Akure, Ondo, Ile-Oluji, Ado- Ekiti, Ikere Ekiti, Ejigbo, Iwo
Host plant families: Anacardiaceae, Arecaceae, Bignoniaceae, Loganiaceae, Malvaceae, Myrtaceae, Orchidaceae

***Callosobruchus* Pic 1902: 6**
C. maculatus (Fabricius) 1775: 66 (Bruchus).
Distribution: Ile-Ife, Oyo, Ikirun. Ila Orangun, Eruwa, Igbo Ora, Ijebu Ode, Modakeke, Abeokuta, Ikire, Badagry, Osogbo, Ogbomoso, Idanre, Ibadan, Akure, Ondo, Ile-Oluji, Ado- Ekiti, Ikere Ekiti, Ejigbo, Iwo.
Host plant families: Annonaceae, Begnoniaceae, Bignoniaceae, Combretaceae, Fabaceae, Liliaceae, Magnoliaceae, Malvaceae, Mimosaceae, Papilionaceae. Poaceae, Rubiaceae, Verbenaceae

Subfamily Donaciinae Kirby, 1837
Macroplea Samouelle, 1819
Apelma Billberg, 1820
Haemonia Dejean, 1821
Macroplea mutica (Fabricius, 1792)
Distribution: Badagry, Osogbo
Host plant families: Annonaceae, Bignoniaceae, Combretaceae, Malvaceae, Poaceae, Rubiaceae
Plateumaris Thomson, 1859
Plateumaris sericea (Linne, 1769)
Distribution: Oyo, Abeokuta, Badagry, Ado Ekiti
Host plant families: Acanthaceae, Caesalpinaceae, Malvaceae, Orchidaceae, Poaceae, Solanaceae

Subfamily Criocerinae Latreille, 1804
Crioceris Geoffroy, 1762
C. asparagi (Linnaeus 1758)
Distribution: Ile-Ife, Modakeke, Ikire, Ogbomoso, Ibadan, Akure
Host plant families: Amaranthaceae, Bombacaceae, Caesalpinaceae, Fabaceae, Malvaceae, Rutaceae, Zingiberaceae

***Lema* Fabricius 1798: 90**
L. cyanella (Linnaeus 1758)
Distribution: Ile-Ife, Ikirun, Ibadan, Akure
Host plant families: Acanthacaeae, Anacardiaceae, Bignoniaceae, Compositae, Musaceae, Papilionaceae, Sterculiaceae

***Lilioceris* Reitter, 1913**
L. lilii (Scopoli 1763)
Distribution: Ile-Ife, Oyo, Ikirun. Ila Orangun, Eruwa, Igbo Ora, Ijebu Ode, Modakeke, Abeokuta, Ikire, Badagry, Osogbo, Ogbomoso, Idanre, Ibadan, Akure, Ondo, Ile-Oluji, Ado- Ekiti, Ikere Ekiti, Ejigbo, Iwo
Host plant families: Bignoniaceae, Caricaeae, Combretaceae, Cucurbitaceae, Liliaceae, Magnoliaceae, Malvaceae, Mimosaceae, Myrtaceae, Poaceae, Rutaceae

***Oulema* Gozis, 1886**
O. melanopus Linnaeus 1758
Distribution: Ile-Ife, Oyo, Ikirun, Ijebu Ode, Modakeke, Ibadan, Akure
Host plant families: Annonaceae, Bignoniaceae, Caesalpinaceae, Cucurbitaceae, Dioscoreaceae, Malvaceae, Piperaceae

Subfamily Cryptocephalinae Gyllenhal, 1813
Cryptocephalus Geoffroy, 1762
C. bipunctatus Linnaeus 1758
Distribution: Ile-Ife, Abeokuta, Ogbomoso, Ibadan, Akure, Ondo
Host plant families: Convolvulaceae, Moraceae, Punicaceae

***C. decemmaculatus* Linneaus (1758)**
Distribution: Oyo, Ikirun. Ila Orangun, Eruwa, Igbo Ora, Ijebu Ode, Modakeke, Abeokuta, Ikire, Badagry, Osogbo, Ogbomoso, Idanre, Ibadan, Akure, Ondo, Ile-Oluji, Ado-Ekiti, Ikere Ekiti, Ejigbo, Iwo
Host plant families: Bignoniaceae, Loganiaceae, Malvaceae, Myrtaceae, Orchidaceae, Zingiberaceae

***C. frontalis* Marsham 1802**
Distribution: Ile-Ife, Oyo, Ikirun., Modakeke, Abeokuta, Osogbo, Ibadan, Akure, Ondo, Ile-Oluji, Ikere Ekiti
Host plant families: Bombacaceae, Meliaceae,

***C. nitidulus* Fabricius 1787**
Distribution: Akure, Ondo, Ile-Oluji, Ado- Ekiti, Ikere Ekiti
Host plant families: Bignoniaceae, Caesalpinaceae, Cucurbitaceae, Malvaceae

***C. punctiger* Paykull 1799**
Distribution: Ile-Ife, Oyo, Ikirun. Ila Orangun, Eruwa, Igbo Ora, Ijebu Ode, Modakeke, Abeokuta, Ikire, Badagry, Osogbo, Ogbomoso, Idanre, Ibadan, Akure, Ondo, Ile-Oluji, Ado- Ekiti, Ikere Ekiti, Ejigbo, Iwo
Host plant families: Anacardiaceae, Bignoniaceae, Compositae, Papilionaceae, Sterculiaceae

***Clytra* Laicharting 1781**
Clytra laeviuscula Ratzeburg, 1837.
Distribution: Ile-Ife, Oyo, Ikirun, Modakeke, Ibadan, Akure, Ondo, Ikere Ekiti, Ejigbo
Host plant families: Bignoniaceae, Combretaceae, Mimosaceae, Punicaceae, Rutaceae.

***Labidostomis* Germar 1817**
Labidostomis tridentata Linnaeus, 1758
Distribution: Ile-Ife, Oyo, Ila Orangun, Eruwa, Modakeke, Abeokuta, Osogbo, Ogbomoso, Ibadan, Akure, Ondo, Ile-Oluji, Ado- Ekiti.
Host plant families: Caesalpinaceae, Malvaceae

Subfamily Chrysomelinae Latreille, 1802
Aspidimorpha Hope, 1840
Aspidimorpha westwoodi (Boheman, 1854)
Distribution: Ile-Ife, Oyo, Ikirun. Ila Orangun, Eruwa, Igbo Ora, Ijebu Ode, Ikire, Ibadan, Ondo, Ikere Ekiti
Host plant families: Anacardiaceae, Arecaceae, Bombacaceae, Caesalpinaceae, Cucurbitaceae, Euphorbiaceae, Lobeliaceae, Magnoliaceae, Poaceae, Rosaceae, Rutaceae, Sterculiaceae

***Cassida* Linnaeus, 1758**
Cassida compuncta (Boheman, 1855)
Distribution: Ile-Ife, Oyo, Ikirun. Ila Orangun, Eruwa, Igbo Ora, Ijebu Ode, Modakeke, Abeokuta, Ikire, Badagry, Osogbo, Ogbomoso, Idanre, Ibadan, Akure, Ondo, Ile-Oluji, Ado- Ekiti, Ikere Ekiti, Ejigbo, Iwo
Host plant families: Amaranthaceae, Apocynaceae, Bignoniaceae, Bombacaceae, Caesalpinaceae, Dioscoreaceae, Labiatae, Loganiaceae, Malvaceae, Moraceae, Piperacea, Punicaceae, Rosaceae, Solanaceae. Verbenaceae

***Chrysolina* Motschulsky, 1860**
C. cerealis (Linnaeus 1767)
Distribution: Ile-Ife, Oyo, Ila Orangun, Eruwa, Igbo Ora, Ijebu Ode, Ikire, Ogbomoso, Ibadan, Akure, Ondo, Ile-Oluji, Ado- Ekiti, Ejigbo, Iwo
Host plant families: Amaranthaceae, Apocynaceae, Arecaceae, Bombacaceae, Caesalpinaceae, Cucurbitaceae, Fabaceae, Lobeliaceae, Magnoliaceae, Moraceae, Mrytaceae, Piperaceae, Rubiaceae, Sterculiaceae, Ulmaceae
C. polita (Linnaeus 1758)
Distribution: Ile-Ife, Ikirun. Ila Orangun, Eruwa, Ijebu Ode, Modakeke, Abeokuta, Osogbo, Ogbomoso, Idanre, Ibadan, Akure, Ondo, Ikere Ekiti
Host plant families: Anacardiaceae, Apocynaceae, Arecaceae, Bignoniaceae, Caricaceae, Compositae, Euphorbiaceae, Liliaceae, Malvaceae, Mimosaceae, Musaceae, Papilionaceae, Piperaceae, Poaceae, Punicaceae, Rosaceae, Rubiaceae, Rutaceae, Solanaceae, Verbenaceae

***Chrysomela* Linnaeus, 1758**
C. populi Linnaeus, 1758
Distribution: Ile-Ife, Oyo, Ikirun. Ila Orangun, Eruwa, Igbo Ora, Ijebu Ode, Modakeke, Abeokuta, Ikire, Osogbo, Ogbomoso, Idanre, Ibadan, Akure, Ondo, Ile-Oluji, Ado-Ekiti, Ikere Ekiti
Host plant families: Annonaceae, Araceae, Begoniaceae, Burseraceae, Convolvulaceae, Dioscoreaceae, Liliaceae, Malvaceae, Mimosaceae, Myrtaceae, Punicaceae, Verbenaceae

***C. vigintipunctata* (Scopoli 1763)**
Distribution: Ile-Ife, Oyo, Ikirun. Ila Orangun, Eruwa, Igbo Ora, Ijebu Ode, Modakeke, Abeokuta, Ikire, Badagry, Osogbo, Ogbomoso, Idanre, Ibadan, Akure, Ondo, Ile-Oluji, Ado- Ekiti, Ikere Ekiti, Ejigbo, Iwo
Host plant families: Acanthaceae, Amaranthaceae, Annonnaceae, Apocynaceae, Areceae, Arecaceae, Begnoniaceae, Bignoniaceae, Caricaceae, Cucurbitaceae, Euphorbitaceae, Labitate, Loganiaceae, Malvaceae, Myrtaceae, Orchidaceae, Piperaceae, Rosaceae, Solanaceae, Verbenaceae.

***Dicranosterna* Motschulsky, 1860**
Dicranosterna circle Stal 1860
Distribution: Ile-Ife, Ikirun, Osogbo
Host plant families: Anacardiaceae, Arecaceae, Composita, Magnoliaceae, Malvaceae, Myrtaceae, Papilionaceae, Zingiberaceae

***Gastrophysa* Chevrolat, 1836**
G. polygoni (Linnaeus 1758)
Distribution: Ile-Ife, Ila Orangun, Eruwa, Igbo Ora, Modakeke, Abeokuta, Osogbo, Idanre, Ibadan, Akure, Ondo, Ile-Oluji, Ikere Ekiti
Host plant families: Anacardiaceae, Araceae, Bignoniaceae, Burseraceae, Caricaceae, Compositae, Euphorbiaceae, Labiatae, Loganiaceae, Meliaceae, Moraceae, Mrytaceae, Orchidaceae, Poaceae, Rutaceae, Solanaceae, Zingiberaceae,

***Gonioctena* Chevrolat, 1836**
G. decemnotata Marsham, 1802
Distribution: Ile-Ife, Ikirun. Ila Orangun, Eruwa, Igbo Ora, Ijebu Ode, Abeokuta, Ikire, Osogbo, Ogbomoso, Idanre, Ibadan, Akure, Ondo, Ile-Oluji, Ado- Ekiti, Ikere Ekiti
Host plant families: Annonaceae, Bignoniaceae, Bombaceae, Caesalpinaceae, Cucurbitaceae, Euphorbiaceae, Lobeliaceae, Musaceae, Papilionacea, Punicaceae, Rutaceae, Sterculiaceae,
G. (Spartophila) olivacea Forster, 1771)
Distribution: Ile-Ife, Oyo, Ila Orangun, Eruwa, Igbo Ora, Ijebu Ode, Modakeke, Ikire, Ogbomoso, Idanre, Ibadan, Akure, Ondo, Ado- Ekiti, Ejigbo, Iwo
Host plant families: Apocynaceae, Bombacaceae, Caesalpinaceae, Convolvulaceae, Fabaceae, Lobeliaceae, Meliaceae, Myrtaceae, Poaceae, Ulmaceae

***Phaedon* Latreille, 1829**
Phaedon concinnus Stephens, 1831
Distribution: Ile-Ife, Oyo, Ila Orangun, Eruwa, Igbo Ora, Modakeke, Abeokuta, Osogbo, Ogbomoso, Idanre, Ibadan, Akure, Ondo, Ile-Oluji, Ado- Ekiti, Ikere Ekiti, Ejigbo, Iwo
Host plant families: Acanthaceae, Annonaceae, Araceae, Bignoniaceae, Burseraceae, Combretaceae, Convolvulaceae, Cucurbitaceae, Labiatae, Loganiaceae, Mimosaceae, Myrtaceae, Papilionaceae, Poaceae, Rosaceae, Rubiaceae, Tiliaceae, Verbenaceae, Zingiberacea

***Phratora* Chevrolat, 1836**
Phratora (Phratora) vitellinae (Linnaeus, 1758)
Distribution: Ile-Ife, Oyo, Ikirun. Ila Orangun, Eruwa, Ijebu Ode, Modakeke, Abeokuta, Ikire, Badagry, Osogbo, Ogbomoso, Idanre, Ibadan, Akure, Ondo, Ado- Ekiti, Ikere Ekiti, Ejigbo, Iwo
Host plant families: Acanthaceae, Anacardiaceae, Araceae, Begoniaceae, Bombaceae, Caesalpinaceae, Convolvulaceae, Compositae, Dioscoreaceae, Labiatae, Loganiaceae, Magnoliaceae, Meliaceae, Rosaceae, Punicaceae

***Prasocuris* Latreille, 1802**
Prasocuris phellandrii Linneeus, 1758
Distribution: Ile-Ife, Oyo,Ila Orangun, Eruwa, Igbo Ora, Ijebu Ode, Ikire, Badagry, Ibadan, Akure, Ondo, Ile-Oluji
Host plant families: Acanthaceae, Annonaceae, Arecaceae, Bombacaceae, Caesalpinaceae, Convolvulaceae, Dioscoreaceae, Labiatae, Lobeliaceae, Malvaceae, Musaceae, Papilionaceae, Poaceae, Sterculiaceae, Ulmaceae, Zingiberacea.

Subfamily Galerucinae Latreille, 1802
Calomicrus Dillwyn, 1829
C. circumfusus (Marsham 1802)
Distribution: Ile-Ife, Ikirun. Ila Orangun, Eruwa, Igbo Ora, Modakeke, Ikire, Ogbomoso, Ejigbo
Host plant families: Annonaceae: Annona senegalensis

***Longitarsus* Latreille, 1829**
Longitarsus brunneus Duftschnid, 1825
Distribution: Ile-Ife, Ikirun, Ila Orangun, Eruwa, Igbo Ora, Ogbomoso, Ejigbo
Host plant families: Acanthaceae, Apocynaceae, Caesalpinaceae, Malvaceae

***Longitarsus dorsalis* Fabricius 1781**
Distribution: Ile-Ife, Ikirun, Ila Orangun, Eruwa, Ikire, Igbo Ora, Ogbomoso, Ejigbo
Host plant families: Amaranthaceae, Bignoniaceae, Caesalpinaceae, Cucurbitaceae

***Longitarsus nigerrimus* Gyllenhal, 1827**
Distribution: Ikirun, Ila Orangun, Eruwa, Igbo Ora, Ogbomoso, Ibadan, Ejigbo
Host plant families: Annonaceae, Acanthaceae, Begnoniaceae, Combretaceae,

***Longitarsus quadriguttatus* Pontoppidan, 1763**
Distribution: Ile-Ife, Ikirun, Ila Orangun, Eruwa, Modakeke, Ikire, Abeokuta, Igbo Ora, Ogbomoso, Ejigbo
Host plant families: Acanthaceae, Anacardiaceae, Arecaceae, Caricaceae, Compositae, Papilionaceae A total of thirty-seven species in twenty-five genera of Leaf Beetles belonging to six subfamilies were recorded in southwestern Nigeria as shown in the checklist. The genera of Leaf Beetles collected did not tally totally with the work of Medler (1980) [16]. *Callosobruchus maculatus* was put under Bruchidae family and was not recognised as chrysomelidae in Medler checklist. The present study in the checklist provided has put *Callosobruchus maculatus* in the subfamily Bruchinae of chrysomelidae family. This follows after the findings of Warchalowski (2003) [22]; Borowiec (2006); and Delobel and Delobel (2007) [8].
Medler (1980) [16] did not classify the Leaf Beetles of Nigeria into different subfamilies but this work has classified the Leaf Beetles recorded in southwestern Nigeria into six different subfamilies. These subfamilies are Bruchinae, Donacinae, Criocerinae, Cryptocephalinae, Chrysomelinae and Galerucinae as shown in the checklist. This study added eight new genera into the existing checklist. The new genera are *Plateumaris, Macroplea, Labidostomis, Dicranosterna, Gonioctena, Gastrophysa, Phratora* and *Chrysolina*. Twenty species that are not in the old checklist were now added to the newly generated checklist produced through this study. The newly added species *are Acanthoscelides obtectus, Callosobruchus maculatus, Bruchidius olivaceus, B. imbricornis, Bruchus loti, B. rufimanus, Plateumaris sericea, Macroplea mutica, Labidostomis tridentata, Clytra laeviuscula, Cryptocephalus punctiger, Dicranosterna circle, Gonioctena olivacea, G. decemnotata, Gastrophysa polygoni, Phratora vitellinae, Chrysolina polita, C. cerealis* and *Longitarsus quadrguttatus* as shown in the checklist.
The division of southwestern Nigerian Leaf Beetles into six different subfamilies was in accord with the work of Kimoto and Gressit (1979) [11], Gressitt and Kimoto (1961) and Warchalowski (2003) [22]. This study find out that subfamily Chrosomelinae is the largest in the study area and Galerucinae, Donacinae, and Criocerinae subfamilies are not as large as subfamily Chrysomelinae in the region. The subfamily Chrysomelinae contained 13 species in 10 genera, while Galerucinae had 5 species in 2 genera. This trend is similar to what occured in other part of the world (Flowers and Hanson, 2003; Gressitt and Kimoto, 1961) [10, 13]. The results in this study shows that the lowest degree of occurrence of subfamily Bruchinae on host plants was observed in the *Bruchus loti* and the occurrence was high for *Callosobruchus maculatus*. This was in accordance with the studies of Akingbohungbe (1976) [4]; Lale and Kolo (1998) [14]; Ofuya (1987) [19]; Lephale *et al*. (2012) [15]; Oke and Olajire (2012) [20]; Augustine *et al*. (2016) [5]. The high occurrence of *C. maculatus* in the region is as a result of the fact that the insect pest tend to be polyphagous and this is in accordance with the studies of Mirzoeva (2001) [17] and Jolivet and Verma (2002) [12].

References

1. Adesina JM. Exploration of Erythrina Excelsa Baker and Aneilema Beniniense (P, 2013.
2. Beauv. Kunth Aqueous Extracts For The Management of Flea Beetles (Podagrica Spp) On Okra (Abelmoschus esculentus).*Nature and Science11* (12)
3. Ahmed BI, Abdlhameed A, Yusuf SR, Aliyu M. Comparative study of the defoliatory activities of Podagrica sjostedti and Podagrica uniforma (Coleoptera: Chrysomelidae) on two intercropped okra varieties in Bauchi State, Nigeria. Savannah Journal of Agriculture. 2006; 1(1):12-14
4. Akingbohungbe AE. A note on the relative susceptibility of unshelled cowpeas to the cowpea weevil (Callosobruchus maculatus F.) (Coleoptera: Bruchidae). Tropical Grain Legume Bulletin No. 1976; 5:11-13.
5. Augustine AM, Idoko JE, Adepoju AO. Ovipositional Response of Seed Beetle Callosobruchus Maculatus (F.) Coleoptra: Chrysomelidae on Some Selected Varieties of Cowpea, Vigna Unguiculata (L.) Walp. International Journal of Research in Agriculture and Forestry.V2016 3:5, 28-34 ISSN 2394-5907
6. Borowiec L. Chrysomelidae. The Leaf Beetles of Europe and the Mediterranean, 2006.
7. Subregion (Checklist and Iconography). Last modification: 25 August, 2006. Available from: http://culex.biol.uni.wroc.pl/cassidae/European%20Chrysomelidae/index.htm
8. Delobel A, Delobel B. Contribution to the knowledge of the Bulgarian seed Beetles (Coleoptera: Bruchidae). Russian Entomological Journal. 2007; 16 (2):213-218.
9. Dialoke Sunday. The Population of Leaf Beetles (Leptualaca fassicollis thoms Coleoptera Chrysomelidae) and Flower Thrips (Megalurothrips usitatus Bagnall Thysanoptera: thripide) on Pigeon pea under the Influence of Plant Density and Planting Date in a Rain Forest Zone, Nigeria. Journal of Biology, Agriculture and Healthcare, 2013, 3:8. ISSN 2224-3208
10. Flowers R, Hanson P. The diversity of the Chrysomelidae fauna in Costa Rica Insights from a Malaize trapline. In Furth, D. G., editor, Special topics in leaf beetle biology, pages 25–51. Pensoft Publisher, Moscow, 2003.
11. Gressitt JL, Kimoto S. The Chrysomelidae (Coleoptera) of China and Korea Part 1 Honolulu, HI Bishop Museum, 1961.
12. Jolivet P, Verma KK. Biology of Leaf Beetles. — Intercept Ltd., USA, 2002.
13. Kimoto S, Gressitt JL. Chrysomelidae (Coleoptera) of

Thailand, Cambodia, Laos and Vietnam I. Sagrinae, Donaciinae, Zeugophorinae, Megalopodinae and Criocerinae. Pacific Insects. 1979; 20:191e256.
14. Lale NES, Kolo AA. Susceptibility of eight improved local cultivars of cowpea to Callosobruchus maculatus (F.) (Coleoptera: Bruchidae) in Nigeria. International Journal of Pest Management. 1998; 44:25-27.
15. Lephale S, Addo-Bediako A, Ayodele V. Susceptibility of seven cowpea cultivars (Vigna unguiculatus) to cowpea beetle (Callosobruchus maculatus). Agricultural Science Research Journal. 2012; 2(2):65-69.
16. Medler JT. Insects of Nigeria-Checklist and Bibliography. Published by The American Entomological Institute, U.S.A, 1980.
17. Mirzoeva N. A study of the ecofaunal complexes of the leaf-eating beetles (Coleoptera, Chrysomelidae) in Azerbaijan. — Turkish Journal of Zoology. 2001; 25:41-52.
18. Odebiyi JA. Relative abundance and seasonal occurrence of Podagrica spp. (Coleoptera: Chrysomelidae) on okra in south Western Nigeria. African Journal of Agricultural Science. 1980; 6:83-84
19. Ofuya TI. Susceptibility of some Vigna species to infestation and damage by Callosobruchus maculatus (Fabricius) (Coleoptera: Bruchidae). Journal of Stored Products Research. 1987; 23:137-138.
20. Oke OA, Olajire TE. Determination of Insect Pests on Planted Cowpea Varities at Teaching and Research Farm of Federal University of Agriculture, Abeokuta, Ogun State, Nigeria. Online International Journal of Microbiology Research. 2012; 1(1):1-7.
21. Van Lommel S, Duchateau L, Coosemans J. The effect of okra mosaic virus and beetle damage on yield of four okra cultivars. *Afri. Crop Sci*. J. 1996; 4:71-77
22. Warchalowski A. Chrysomelidae – The Leaf-Beetles of Europe and the Mediterranean Area. Warsaw (Natura optima dux Foundation), 2003, 599 p.