



NEWSLETTER



50TH ANNIVERSARY EDITION
A Publication of the Entomological Society of Nigeria

HUMAN INTERFERENCE

(Urbanization and Industrialization):

Consequences on Insects and Human Health

Rapid development activities have been associated with more and more exploitation of various natural resources as technological advancement has resulted in fast depletion of non-renewable energy resources, mainly coal and petroleum, and also various minerals. Urbanization and industrialization have interfered with the ecological balance of nature due to large scale impact. The species of environment is it plants or animals have an influence on the environment they live in and in turn get influenced by the same. A proper balance has to be maintained between the magnitude of influences and it is being maintained too by the plant and animal species, except for MAN. In simple terms there are over interference of humans on the environment. The main cause for this interference can be blamed on the ever increasing scientific knowledge of man. With this knowledge he is able to modify the environment to suit his needs. Firstly, the misconception we all have is that this over interference by humans is a phenomenon dated back to maybe only a few decades but very few of us realize that this has been happening from the very beginning of human civilization; for instance, early man killing animals few for food, few for safety (fierce animals). Now, what we see is man destroying forests because of increased demand for land for various other purposes like industrialization, urbanization and agriculture.

Destruction of forests not only decreases the number of trees from the earth's surface but it also destroys the habitat of thousands of insects and other arthropods. Industrialization though benefits man by increasing his standard of living it is having a negative impact on the environment. Industries and factories are known to release hazardous chemicals and wastes into rivers which in turn is leading to pollution. Here it can be clearly noticed how this interference of humans is affecting various parts of the

continue on page 12

FROM ESN PRESIDENT

The 46th Annual Conference of the Society holding in the University of Lagos (6-9 October, 2015) coincides with the 50th anniversary of Entomological Society of Nigeria (ESN). From 1965 when the Society was established, only four conferences were omitted till date. These years of its existence have been



characterized with steady growth and development. In all the conferences, a theme is normally chosen that emphasizes at various times, the importance of insects in all aspects of human endeavor including climate change.

This year, the conference "Eko 2015" has the theme "Urbanization and Industrialization: The interfering influence on insects, public health and environment". The keynote address speaker is Mr. Olumide Onakoya, a former executive chairman of Mobil Oil Nigeria Plc.

Insects are found everywhere even in petroleum. They affect public health and changing climatic conditions modify their behavior. Today in northern Uganda, entomologists are trying to solve the problem of Tsetse flies which cause sleeping sickness among the residents and communities along the river banks. The host, an insect like mosquitoes, is the target of entomologists like us who have the knowledge of their control and management.

Our Society today is legally registered with the Corporate Affairs Commission of the Federal Republic of Nigeria. The Society has well over five hundred members with twenty active branches, fifty three fellows, thirty nine honorary fellows and eleven presidents from inception. These entomologists specialize in various aspects of insect studies: Morphology, Taxonomy, Systematics, Physiology, Toxicology, Ecology, Bionomics, Behaviour, Crop protection, Entomology/Economic Entomology/Pest Management, Extension and Regulatory Entomology, Medical/Veterinary Entomology, Storage Entomology and Forensic Entomology.

It is gratifying to note today that the Society has retired N4m of the TETFund grant for publication of our journal.

In marking our fifty years of existence, it is our desire now to have a high impact journal with open access.

Let me welcome everyone with joy to this unique conference in which we shall share reminiscences of our Society which we revere.

Professor Dan A. Enobakhare, FESN, KSM
National President

EDITORIAL



Urbanization and Industrialization: The interfering influence on insects, public health and environment

Humans alone have the potential to gather resources from beyond their immediate surroundings and process them into different and more versatile forms. This has made humans to thrive and flourish beyond natural constraints. Primitive humans used natural resources to satisfy their basic needs of air, water, food and shelter. These natural and unprocessed resources were readily available in the biosphere, and the residues produced by

the use of these resources were generally compatible with or easily assimilated by the environment.

Improvement over the traditional practice in terms of the various activities by man have led to urbanization and industrialization which produces anthropogenic (man-induced) pollutants that overloaded the system, and interferes with the well being of flora and fauna. The resultant effects of this is the distortion of natural equilibrium of the ecosystems in terms of emergence of different kinds of pests and disease causing organism, resurgence of pests and diseases of public health interest and climate change.

With the dawn of the industrial revolution, humans were better able than ever to satisfy their needs for air, water, food and shelter. So, humans turned their attention to other needs beyond those associated with survival. The industrial production, distribution and use of different forms of products usually results in more complex residuals and/or wastes, many of which are not compatible with or readily assimilated by the environment. As the acquired needs (or luxuries) increase so will the complexity of the production chain, and mass and complexity of the pollutants generated.

Urbanization entails development of infrastructures such as housing, good roads, parks, dams and a host of others that alters the natural environmental factors and result to negative impact on the health of the residents. The physical and chemical properties of particulates are associated with health risks such as respiratory problems, skin irritations, eyes inflammations, blood clotting and various types of allergies.

In addition, the impact of mankind on biodiversity has clearly been detrimental to many fauna (insect and other arthropods) and human health, but the story is more complex and subtle than has been appreciated. Urbanization provides ready-made laboratories for studying evolution and adaptive processes, and examining the influence of humans on flora and fauna creates the potential to mitigate any negative effects. Entomologists should be more positive about our relationship with the natural world: We should celebrate the creative aspects of our impact on insects and other arthropods in addition to concerning ourselves with the negative effects by proffering empirical researches that can produce results which will be adopted to mitigate problems caused by urbanization and industrialization.

Of note is the fact that, it is not all bad news as many animal (insect and other arthropods) and plant species have adapted to the new stresses, food sources, predators and threats in urban and suburban environments, where they thrive in close proximity to humans. Their success provides researchers with valuable and sometimes unexpected insights into evolutionary and selective processes.

By **Dr A.A. Oyerinde**
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PRESIDENTIAL ADDRESS DELIVERED AT THE
45th ANNUAL CONFERENCE OF THE ENTOMOLOGICAL
SOCIETY OF NIGERIA AT UNIVERSITY OF ABUJA 7-10 OCTOBER 2014

Professor Dan A, Enobakhare, FESN, KSM
Department of Crop Science
Faculty of Agriculture University of Benin, Benin City

Protocol
Distinguished Ladies and Gentlemen
Fellow Entomologists

I am delighted to welcome you all on behalf of Council and the esteemed members of the Entomological Society of Nigeria to the 45th Annual Conference of the Society holding in Abuja, the City of Unity. This conference marks the 49th anniversary of the Society which precedes the golden jubilee celebration in Lagos next year. The tenure of one term of two years in office for some executive members of the Society you elected in October 2012 in Benin, will expire before the close of this conference. Consequently, there will be an election for the posts of President, Vice President, Secretary, Asst. Secretary/PRO and Treasurer. We thank you immensely for your cooperation and understanding.

Golden Jubilee Celebration of ESN, October 2015

A proposal, considered and approved by Council, has been made for the Golden jubilee celebration of our Society in 2015. It will be recalled that in my 2013 Presidential address gave a chronology of the Foundation of ESN.

Entomologically speaking, our highly esteemed professional Society (ESN), with the broad objective to "further the study of insects in Nigeria" started with the "egg-phase" in a holo /hemimetabolic setting in October 1965. Its inaugural meeting was held in the Department of Zoology at the University of Ibadan (Balogun, 1995 Presidential address). It is on record that one Dr A.D, Pickott, Head of International Capsid Research Team, Cocoa Research Institute, Ghana delivered an inaugural address titled "the Ecological Approach to the Solution of Pest Problems in Agriculture".

The proposed celebration shall feature

1. Publication and Launching of ESN (Anniversary edition) journal.
2. Past Presidential addresses at annual conference
3. Historical profile of ESN
4. Launching of permanent site of ESN Secretariat
5. ESN commemorative stamp
6. Specialized fora
7. Awards, among others.

Over the years, the Society has grown astronomically and in 2015, would have conducted forty-six (46) annual conferences having missed only four (4) since its existence. As at today, ESN has seventeen (17) active branches and three (3) moribund nationwide with four hundred and ninety-one (491) registered members, twenty four (24) life members, fifty-three (53) Fellows (FESN), thirty-nine (39) honorary Fellows and eleven (12) presidents. **ESN Fellows (FESN)**

The FESN award is given to deserving members of the Society every 2 years. There was none in 2012 and 2013 conferences in Benin and Yenagoa respectively,

In this conference, two eminent entomologists will be awarded Fellowship having been screened using approved criteria and recommended to Council for approval by FESN Award committee after ratification by the Board of ESN Fellows as provided by our Constitution in Article XVI P.13.

Members of the Committee of FESN Award chaired by the veteran Dr Olupomi Ajayi, independently scored nominated candidates from branches using the approved criteria. Scores were collated by the Committee with Professors Emmanuel O. Ogunwolu, Thomas Ofuya, Adeyinka Adesiyun as members.

numbers temporarily, unexpected toxic effects beyond target species may be produced. This is the logical expectation of pesticide use where most pesticides are applied. Resurgence/resistance to pesticides, rise of secondary pests and environmental pollution arise from indiscriminate use of pesticides. Pesticides are harmful and there is an awareness in government industry and agriculture that pesticide chemicals are potentially so. The question remains whether this awareness is great enough and whether it is focused sufficiently on hazards to species other than the pest species, yet this fact is lightly regarded unless complaints are made. The Entomological society of Nigeria (ESN) has successfully provided answers to these problems by reviewing and publishing a "Handbook of Insecticides Available in Nigeria". The recent edition edited by C.I. Amatobi, A.O. Omoloye, R.S. Adamu and M.B. Sosan was a mandate of ESN and is now available to government, members of the Society and everybody for information and necessary action.

There is no doubt that misplaced emphasis on chemicals modifies assessment to the nature and values of advantages brought about by pest control. Our government should henceforth be able to legislate on the proper use of pesticides on food crops, determine safe levels and publicize the hazards resulting from overuse and abuse.

Recognition, Promotion and bereavement

Communique of 2013 conference was published in The Nation and The Guardian Newspapers. Press conference was granted to President and the Vice President from about eleven (11) media

houses with an interview by Channels TV. This was aired many times with emphasis on Insect Taxonomy and the need to establish Insect Museum of Natural History in Nigeria.

Since the last conference, we have had recognitions, promotions and losses.

1. Prof E.O. Ogunwolu (Makurdi branch) was given an award for distinguished long service to the University of Agriculture, Makurdi during the University's last convocation ceremony,
2. Prof R.I. Egwatu (Awka branch) appointed Emeritus professor of Unizik since 2011.
3. Prof A.E. Akingbohunge, FESN (Ile-Ife branch) appointed Emeritus Professor at OAU, Ile-Ife.
4. Prof I.E. Nwana FESN (Awka branch) appointed chairman of planning & Implementation Committee of a proposed University in Achina, Anambra State,
5. Prof B.A. Matanmi FESN (Ile-Ife branch) celebrated his 70th birthday adversary.
6. ESN commends Dr. J.O. Williams, past Executive Director of NSPRI, Ilorin who retired from service.
7. Prof. W.A. Muse FESN elected chairman Committee of Dean of OAU, Ile-Ife.
8. Prof. S. Asala (Abuja branch) appointed Provost College of Health Sciences.

Many members were promoted to various positions in their Institutions. To the rank of professor we have:

Dr A. Omoloye (Ibadan branch),

Dr F.I. Aigbodion (Benin branch), Dr M.U. Ukwela (Makurdi /Yandev/Lafia branch), Dr N.D. Ibrahim (Sokoto branch), Dr M.O. Ashamo (National Secretary, Akure branch), Dr AT, Ande (Ilorin/Ogbomoso branch., Drs A.B.O. Ogedegbe and J. Rotimi (Benin branch) were promoted to the rank of Associate professor while Dr J.O. Akinneye (Chairman, Akure branch) was elevated to the post of Senior lecturer. A.O. Omoregie (Benin branch) was upgraded to the rank of Assistant Lecturer.

The following members successfully defended their Ph.D thesis and awarded degree of Doctor of Philosophy in Entomology. They are Aneni (Benin branch), Mrs S.W. Asala (Abuja branch) defended Ph.D and appointed Deputy Dean, Faculty of Agriculture; and K.D. Ileke (Akure branch).

We rejoice with Professors Edward Agbo Omudu (Makurdi branch) and Timothy Eidi (PH/Yenagoa branch) who delivered their inaugural lectures this year.

We are pleased with the appointments of Dr Yahaya M. Abdullah! (Sokoto branch) as Ag Head of Zoology Unit, P.N. Idachaba (Abuja branch) Ag Head of Crop Science Laboratory, Prof Sylvester Ogbogu (Ile-Ife branch & National Treasurer) Head of Department in OAU, Ile-Ife for 3 years w.e.f July 2014. In Yola/Jalingo/Mubi branch, we have many appointments as Heads of Department viz: Dr (Mrs) Rabecah S. Naphtali - HOD Zoology; Sunday C.

Samuel, HOD Crop Sci.; Oaya C. Samuel, HOD Agric Technology; Dr, M.M. Degri, HOD Agronomy and their branch chairman Dr (Mrs) A.M. Malgwi Associate professor, elected internal member of the Governing Council of MAUTECH.

I congratulate you all on behalf of Council and members of ESN. It is heart-warming to learn that Dr Samson Oladipo Okunade of Kano branch relocated to NSPRI headquarters in Ilorin.

On a sad note, however the Society lost some eminent members. First is Professor Oba Oyidi of IA & R Zaria. He was a founding member of the Society and he specialized in grasshoppers and Locusts. He was buried 15 July, 2014 at Ogiri in Kogi State. ESN was represented and condolences sent. Mr S.O. Dina (Ibadan branch) a foremost entomologist and former secretary of Ibadan branch passed on 12 Dec. 2013 buried 24 Jan. 2013 at IAR & T Moor Plantation, Ibadan. ESN sent condolences and was adequately represented at the burial. Donald Ukeh (Calabar/Uyo branch) on sabbatical leave at University of Agriculture Makurdi died in an accident 16 Jan 2014. Condolences were sent and ESN represented in the burial. A. J. Akpan, a curator from PH/Yenagoa branch died 3 July 2013 and was buried 22 March 2014. Condolences sent to the family. Prof Banjo (Abeokuta branch) died 3 November 2013 and buried 15 November, Condolences sent.

The following members lost their dear ones and we share your grief Prof S. N. Okiwelu

(PH/Yenagoa branch) lost the younger brother (Felix O. Okiwelu) on Friday 23 May 2014. He was buried 2nd August 2014. Condolences were sent. Mother of Prof W. Makanjuola (Chairman Lagos branch) died and was buried Friday 31 Jan 2014. ESN sent condolences. Prof. F.A. Ajayi buried *his* mother-in-law and ESN was represented by the National Secretary, N.E.S. Lale, CO. Adedire and two branch members from Akure were *in* the burial ceremony.

May their souls rest in peace.

Conclusion

Finally, permit me to inform you that since the last Conference, Council has met four (4) times at Yenagoa (7 Oct. 2013) Bida/Badeggi (22 March 2014), Awka (19 July 2014) and Abuja (7/10/14). I would like to thank the elders and fellow entomologists of the Society for your encouragement and cooperation and for tolerating my shortcomings.

In all I have done, I consulted widely. I am wiser now because whoever walks with the wise becomes wiser. Without deliberation, plans come to nothing and where counsellors are many, plans succeed. If you want to know the road ahead, ask those coming back.

Let me appreciate the chief host of this conference i.e. the Vice-Chancellor of University of Abuja, Prof M. U. Adikwu FSTAN, FPSN; the special guests of honour - the Hon. Minister Federal Ministry of Agriculture and Rural Development (Dr Akinwumi Ayo Adesina); the honourable Minister Federal Ministry of Science and Technology (Dr Bulama); the keynote address presenter, Prof

Hayward B. Mafuyai, Vice-Chancellor University of Jos. I thank the presenters of symposium and Special papers.

The LOC members of this Conference (led by Dr Oyerinde) have my profound regard for all the efforts they have made to bring us to Abuja notwithstanding EVD and insecurity threats. However good or bad a situation is, it will change.

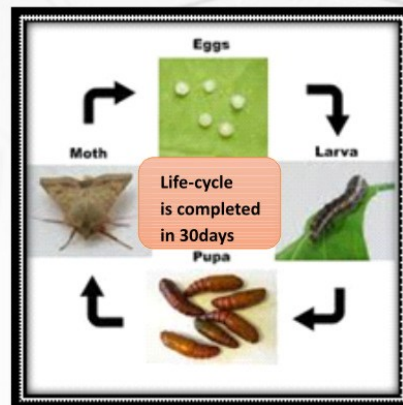
Thank you fellow entomologists and participants for coming to this conference.

Professor Dan A. Enobakhare, FESN, KSM
National President 2012 - date



***Helicoverpa armigera* HUBNER [LEPIDOPTERA: NOCTUIDEA]: A COSMOPOLITAN AND POLYPHAGOUS PESTS OF MANY TROPICAL AND SUB-TROPICAL CROPS**

ANNA M. MALGWI (PH.D) READER,
 Department of Crop Protection,
 Modibbo Adama Univ. Of Tech. (former F.U.T.), Yola
 Adamawa State, Nigeria.
 National ESN Treasurer And Pioneer
 Chairperson ESN (Yola/Jalingo/Mubi Branch)



MATURED LARVAE

Scientific classification

Kingdom: [Animalia](#)
 Phylum: [Arthropoda](#)
 Class: [Insecta](#)
 Order: [Lepidoptera](#)
 Family: [Noctuidae](#)
 Genus: [Helicoverpa](#)
 Species: *H. armigera*

Binomial name

Helicoverpa armigera
 (Hübner, [1809])

Distribution: This species is widespread in central and southern Europe, temperate Asia, Africa, Australia and Oceania, and has also recently been confirmed to have successfully invaded Brazil. It is a migrant species, able to reach Scandinavia and other northern territories. The **cotton bollworm, corn earworm or Old World (African) bollworm**, *Helicoverpa armigera*, (also known as the **scarce**

MATURED ADULT AND COMPLETE LIFE CIRCLE H. Armigera SYNONYMS

- *Chloridea armigera* Hübner,
- *Chloridea obsoleta* Duncan & Westwood, 1841
- *Helicoverpa commoni* Hardwick, 1965
- *Helicoverpa obsoleta* Auctorum,
- *Heliothis armigera* Hübner, 1805
- *Heliothis conferta* Walker, 1857
- *Heliothis fusca* Cockerell, 1889
- *Heliothis pulverosa* Walker, 1857
- *Heliothis rama* Bhattacharjee & Gupta, 1972
- *Heliothis uniformis* Wallengren, 1860
- *Noctua armigera* Hübner, [1805]
- *Noctuabarbara* Fabricius, 1794

bordered straw in the UK, where it is an immigrant) is a moth, the larvae of which feed on a wide range of plants, including many important cultivated crops. It is a major pest in cotton and one of the most polyphagous and cosmopolitan pest species. It should not be confused with the similarly named, related species *Helicoverpa zea*.

Life History

THE EGGS are spherical, 0.4 to 0.6 mm in diameter and have a costate surface. They are white, later becoming greenish.

THE LARVAE takes 13 to 22 days to develop, reaching up to 40 mm long in the sixth instar. Their colouring is variable but mostly greenish and yellow to red-brown. The head is yellow with several spots. Three dark