

References

- Barclay, H.J., Hargrove, J.W., Clift, A. & Meats, A.** 2005. Procedures for declaring pest free status, pp. 363–386. *In* Dyck, V.A., Hendrichs, J. and Robinson, A.S., eds. *Sterile insect technique. Principles and practice in area-wide integrated pest management*. Springer, Dordrecht, The Netherlands.
- Barclay, H.J., Clift, A., Hargrove, J.W., Luckins, A.G., Feldmann, U., Geiger, R. & Vreysen, M.J.B.**, *Guidelines for declaring areas free of tsetse flies and tsetse-transmitted trypanosomiasis*. Programme Against African Trypanosomiasis Technical and Scientific Series. Food and Agriculture Organization of the United Nations, Rome, Italy (submitted).
- Baylis, M., & Nambiro, C.O.** 1993. *The responses of Glossina pallidipes and G. longipennis (Diptera: Glossinidae) to odour-baited traps and targes at Galana Ranch, south-eastern Kenya*. Bulletin of Entomological Research 83: 145–151.
- Brightwell, R., Dransfield, R.D., Kyorku, C., Golder, T.K., Tarimo, S.A. & Mungai, D.** 1987. *A new trap for Glossina pallidipes*. Tropical Pest Management 33: 151–189.
- Brightwell, R., Dransfield, R.D. & Kyorku, C.** 1991. *Development of a low-cost tsetse trap and odour baits for Glossina pallidipes and G. longipennis in Kenya*. Medical and Veterinary Entomology 5: 153–164.
- Buxton, P.A.** 1955. *The natural history of tsetse flies*. H.K. Lewis and C. Ltd. London, UK.
- Cecchi, G. & Mattioli, R.C.** 2007. *The role of FAO GeoNetwork in a multinational development programme: the case of the Programme Against African Trypanosomiasis*. OSGeo Journal 2: 20–24. http://www.osgeo.org/files/journal/v2/en-us/final_pdfs/OSGeoJournal_vol2_FAO_geonet.pdf
- Cecchi, G., Mattioli, R.C., Slingenbergh, J., de la Rocque, S. & Feldmann, U.** 2008. *Standardizing land cover mapping for tsetse and trypanosomiasis decision making*. Programme Against African Trypanosomiasis Technical and Scientific Series 8. Food and Agriculture Organization of the United Nations, Rome, Italy. <http://www.fao.org/docrep/010/i0215e/i0215e00.htm>.
- Cecchi, G., Mattioli, R.C., Slingenbergh, J., de la Rocque, S.** *Land cover and tsetse fly distributions in sub-Saharan Africa*. Medical and Veterinary Entomology. <http://dx.doi.org/10.1111/j.1365-2915.2008.00747.x> (in press).
- Challier, A., & Laveissière, C.** 1973. *Un nouveau piège pour la capture des glossines (Glossina: Diptera, Muscidae). Description et essais sur le terrain*. Cahiers ORSTOM Série Entomologie Médicale et Parasitologie 11: 251–262.
- Challier, A., Eyraud, M., Lafaye, A. & Laveissière, C.** 1977. *Amélioration du rendement du piège biconique pour glossines (Diptera, Glossinidae), par l'emploi d'un cône inférieur bleu*. Cahiers ORSTOM Série Entomologie Médicale et Parasitologie 15: 283–286.
- Cox, J.St.H.** 2007. The role of geographic information systems and spatial analysis in area-wide vector control programmes, pp. 199–210. *In* Vreysen, M.J.B., Robinson, A.S. & Hendrichs, J.,

- eds. *Area-wide control of insect pests. From research to field implementation*. Springer, Dordrecht, The Netherlands.
- Cox, J.St.H. & Vreysen, M.J.B.** 2005. Use of geographic information systems and spatial analysis in area-wide integrated pest management programmes that integrate the sterile insect technique, pp. 453-477. In Dyck, V.A., Hendrichs, J. & Robinson, A.S., eds. *Sterile insect technique. Principles and practice in area-wide integrated pest management*. Springer, Dordrecht, The Netherlands.
- Crump, A.J. & Brady, J.** 1979. *Circadian activity patterns in three species of tsetse: Glossina palpalis, austeni and morsitans*. *Physiological Entomology* 4: 311–318.
- Cuisance, D.** 2000. *Cours international sur les trypanosomoses Africaines*. CIRAD-EMVT, Montpellier Cedex 5, France.
- Desquesnes, M. & Davila, A.M.R.** 2002. *Applications of PCR-based tools for detection and identification of animal trypanosomes: a review and perspectives*. *Veterinary Parasitology* 109: 213–231.
- Desquesnes, M. & Dia, M.L.** 2004. *Mechanical transmission of Trypanosoma vivax in cattle by the African tabanid Atylotus fuscipes*. *Veterinary Parasitology* 119: 9–19.
- Dujardin, J.P., Bermudez, H., Casini, C., Schofield, C.J. & Tibayrenc, M.** 1997. *Metric differences between silvatic and domestic Triatoma infestans (Heteroptera: Reduviidae) in Bolivia*. *Journal of Medical Entomology* 34: 544–551.
- Dyck, V.A., Reyes Flores, J., Vreysen, M.J.B., Regidor-Fernandez, E., Teruya, T., Barnes, B., Gomez Riera, P., Lindquist, D. & Loosjes, M.** 2005. Management of area-wide integrated pest management programmes that integrate the sterile insect technique, pp. 525–545. In Dyck, V.A., Hendrichs, J. & Robinson, A.S., eds. *Sterile insect technique. Principles and practice in area-wide integrated pest management*. Springer, Dordrecht, The Netherlands.
- Fillidier, J. & Mérot, P.** 1989. *Etude de l'attractivité de solutions isolées par fractionnement de l'urine de bovin Baoulé pour Glossina tachinoides Westwood, 1850 au Burkina Faso*. *Revue d'Élevage de Médecine Vétérinaire des Pays tropicaux* 42: 453–455.
- Flint, S.** 1985. *A comparison of various traps for Glossina spp. (Glossinidae) and other Diptera*. *Bulletin of Entomological Research* 75: 529–534.
- Food and Agriculture Organization (FAO).** 1982a. *Training manual for tsetse control personnel. Volume 1. Tsetse biology, systematics and distribution; techniques*. FAO, Rome, Italy.
- Food and Agriculture Organization (FAO).** 1982b. *Training manual for tsetse control personnel. Volume 2. Ecology and behaviour of tsetse*. FAO, Rome, Italy.
- Food and Agriculture Organization (FAO).** 1992. *Training manual for tsetse control personnel. Volume 4. Use of attractive devices for tsetse survey and control*. FAO, Rome, Italy.
- Food and Agriculture Organization (FAO).** 1993. *Training manual for tsetse control personnel. Volume 5. Insecticides for tsetse and trypanosomiasis control using attractive bait techniques*. FAO, Rome, Italy.
- Ford, J. & Katondo, K.M.** 1977. *Maps of tsetse fly (Glossina) distribution in Africa, 1973, according to subgeneric groups on scale of 1:5,000,000*. *Bulletin of Animal Health and Production in Africa* 25: 187-193.
- Gooding, R.H. & Krafsur, E.S.** 2005. *Tsetse genetics: contributions to biology, systematics, and control of tsetse flies*. *Annual Review of Entomology* 50: 101–123.

- Gouteux, J.P.** 1987. *Une nouvelle glossine du Congo: Glossina (Austenina) frezili sp. Nov. (Diptera: Glossinidae)*. Tropical Medicine and Parasitology 38: 97–100.
- Gouteux, J.P.** 1991. La lutte par piégeage contre *Glossina fuscipes fuscipes* pour la protection d'élevage en République Centrafricaine. 2. Caractéristiques du piège bipyramidal. Revue d'Élevage et de Médecine Vétérinaire des Pays tropicaux 44: 295–299.
- Gouteux, J.P. & Lancien, J.** 1986. *Le piège pyramidal à tsé-tsé (Diptera: Glossinidae) pour la capture et la lutte. Essais comparatifs et description de nouveau piège*. Tropical Medicine and Parasitology 37: 61–66.
- Gouteux, J.P., Cuisance, D., Demba, D., N'Dokoue, F. & Le Gall, F.** 1991. *La lutte par piégeage contre Glossina fuscipes fuscipes pour la protection d'élevage en République Centrafricaine. 1. Mise au point d'un piège adapté à un milieu d'éleveurs semi-nomades*. Revue d'Élevage et de Médecine Vétérinaire des Pays tropicaux 44: 287–294.
- Green, C. & Flint, S.** 1986. *An analysis of colour effects in the performance of the F2 trap against Glossina pallidipes Austen and G. morsitans morsitans Westwood (Diptera: Glossinidae) in Zimbabwe*. Bulletin of Entomological Research 76: 409–418.
- Hall, M.J.R. & Wall, R.** 2004. Biting flies: their role in the mechanical transmission of trypanosomes to livestock and methods for their control, pp. 583–594. In Maudlin, I., Holmes, P.H. & Miles, M.A., eds. The trypanosomiasis. CABI Publishing, Oxfordshire, UK.
- Hall, D.R., Beevor, P.S., Cork, A., Nesbitt, B.F. & Vale, G.A.** 1994. *1-Octen-3-ol: a potent olfactory stimulant and attractant for tsetse isolated from cattle odours*. Insect Science and its Applications 5: 335–339.
- Hargrove, J.W. & Langley, P.A.** 1990. *Sterilising tsetse in the field — a successful trial*. Bulletin of Entomological Research 80: 397–403.
- Hargrove, J.W. & Brady, J.** 1992. *Activity rhythms of tsetse flies (Glossina spp.) (Diptera: Glossinidae) at low and high temperatures in nature*. Bulletin of Entomological Research 82: 321–326.
- Hendrichs, J., Robinson, A.S., Kenmore, P. & Vreysen, M.J.B.** 2007. Area-wide integrated pest management: principles, practice and prospects, pp. 3–33. In Vreysen, M.J.B., Robinson, A.S., & Hendrichs, J., eds. *Area-wide control of insect pests. From research to field implementation*. Springer, Dordrecht, The Netherlands.
- Hendrichs, J., Vreysen, M.J.B., Enkerlin, W.R. & Cayol, J.P.** 2005. Strategic options in using sterile insects for area-wide integrated pest management, pp. 563–600. In Dyck, V.A., Hendrichs, J. & Robinson, A.S., eds. *Sterile insect technique. Principles and practice in area-wide integrated pest management*. Springer, Dordrecht, The Netherlands.
- Hendrickx, G., de la Rocque, S. & Mattioli, R.C.** 2004. *Long-term tsetse and trypanosomiasis management options in West Africa. Programme Against African Trypanosomiasis. Technical and Scientific Series 6*, Food and Agriculture Organization of the United Nations, Rome, Italy.
- Hendrickx, G., Napala, A., Dao, B., Batawui, D., de Deken, R., Vermeilen, A. & Slingenbergh, J.H.W.** 1999. *A systematic approach to area-wide tsetse distribution and abundance maps*. Bulletin of Entomological Research 89: 231–244.
- International Atomic Energy Agency (IAEA).** 2003. *Improved attractants for enhancing tsetse fly suppression*. Final report of a coordinated research project 1996–2002. IAEA-TEC-DOC-1373 FAO/IAEA. IAEA, Vienna, Austria.

- Itard, J.** 1966. Cycle de l'oogenèse chez les femelles de *Glossina tachinoides* West. et détermination de l'âge physiologique. *Revue d'Elevage et de Médecine Vétérinaire des Pays tropicaux* 19: 331–350.
- Ito, Y.** 1989. Population assessment, pp. 175–183. In Robinson, A.S., & Hooper, G., eds. *World crop pests 3B. Fruit flies: their biology, natural enemies and control*. Elsevier, New York, NY, USA.
- Jamonneau, V., Ravel, S., Koffi, M., Zeze, D., Kaba, D., N'Dri, L., Coulibaly, B., Cuny, G. & Solano, P.** 2004. Mixed trypanosome infections in tsetse and pigs and their epidemiological significance in a sleeping sickness focus in Côte d'Ivoire. *Parasitology* 129: 693–702.
- Jordan, A.M.** 1993. Tsetse flies (Glossinidae), pp. 333–388. In Lane, R.P. & Crosskey, R.W., eds. *Medical insects and arachnids*. Chapman & Hall, London, UK.
- Kappmeier, K.** 2000. A newly developed odour-baited "H trap" for the live collection of *Glossina brevipalpis* and *Glossina austeni* (Diptera: Glossinidae) in South Africa. *Onderstepoort Journal of Veterinary Research* 67: 15–26.
- Klassen, W.** 2005. Area-wide integrated pest management and the sterile insect technique, pp. 39–68. In Dyck, V.A., Hendrichs, J., and Robinson, A.S., eds. *Sterile insect technique. Principles and practice in area-wide integrated pest management*. Springer, Dordrecht, The Netherlands.
- Krafsur, E.S.** 2003. Tsetse fly population genetics: an indirect approach to dispersal. *Trends in Parasitology* 19: 162–166.
- Kuzoe, F.A.S. & Schofield, C.J.** 2005. *Strategic review of traps and targets for tsetse and African trypanosomiasis control*. WHO/TDR, Geneva, Switzerland.
- Kyorku, C. & Brady, J.** 1994. A free-running bimodal circadian rhythm in the tsetse fly *Glossina longipennis*. *Journal of Insect Physiology* 40: 63–67.
- Kyorku, C., Brightwell, R. & Dransfield, R.D.** 1990. Traps and odour baits for the tsetse fly, *Glossina longipennis* (Diptera: Glossinidae). *Bulletin of Entomological Research* 80: 405–416.
- Lancien, J.** 1981. Description du piège monoconique utilisé pour l'élimination des glossines en République Populaire du Congo. *Cahiers ORSTOM Série Entomologie Médicale et Parasitologie* 19: 235–238.
- Lancien, J. & Gouteux, J.P.** 1987. Le piège pyramidal à mouche tsé-tsé (Diptera: Glossinidae). *Afrique Médicale* 26: 647–652.
- Laveissière, C. & Grébaud, P.** 1990. Recherches sur les pièges à Glossines (Diptera: Glossinidae). Mise au point d'un modèle économique: le piège "Vavoua". *Tropical Medicine and Parasitology* 41: 185–192.
- Leak, S.G.A.** 1998. *Tsetse biology and ecology: their role in the epidemiology and control of trypanosomiasis*. CABI International, Oxford, UK.
- Leak, S.G.A., Ceesay, M.L., Fofana, D. & Münstermann, S.** 2004. Prevaling diseases and control options in the Kombos districts of The Gambia. Proceedings of a conference of PRO-CORDEL, November 2003, Banjul, The Gambia. ITC, The Gambia.
- Leak, S.G.A., Mulatu, W., Rowlands, G.J. & d'Ieteren, G.D.M.** 1995. A trial of cypermethrin pour-on insecticide to control *Glossina pallidipes*, *G. f. fuscipes* and *G. morsitans submorsitans* in the Ghibe valley, Ethiopia. *Bulletin of Entomological Research* 85: 241–251.

- Lefrançois T., Solano, P., de la Rocque, S., Bengaly, Z., Reifenberg, J.M., Kabore, I. & Cuisance, D.** 1998. *New epidemiological features on animal trypanosomiasis by molecular analysis in the pastoral zone of Sédérédougou, Burkina Faso*. *Molecular Ecology* 7: 897–904.
- Machado, A. de Barros.** 1954. *Révision systématique des glossines du groupe palpalis (Diptera)*. Publication of Museo do Dundo Companhia De Diamantes de Angola (Diamang) No. 22.
- Machado, A. de Barros.** 1959. *Nouvelles contributions à l'étude systématique et biogéographique des glossines (Diptera)*. Publication of Museo do Dundo Companhia De Diamantes de Angola (Diamang) No. 46.
- Maudlin, I., Holmes, P.H. & Miles, M.A., eds.** 2004. *The trypanosomiasis*. CAB International, Cromwell Press, UK.
- Marquez, J.G., Vreysen, M.J.B., Robinson, A.S., Bado, S. & Krafur, E.S.** 2004. *Mitochondrial diversity analysis of Glossina palpalis gambiense from Mali and Senegal*. *Medical and Veterinary Entomology* 18: 288–295.
- Mihok, S.** 2002. *The development of a multipurpose trap (the NZI) for tsetse and other biting flies*. *Bulletin of Entomological Research* 92: 385–403.
- Moloo, S.K.** 1985. *Distribution of Glossina species in Africa*. *Acta Tropica* 42: 275–281.
- Moloo, S.K.** 1993. *The distribution of Glossina species in Africa and their natural hosts*. *Insect Science and its Applications* 14: 511–527.
- Mulligan, H.W., ed.** 1970. *The African trypanosomiasis*. George Allan and Unwin. London, UK.
- Ndegwa, P.N. & Mihok, S.** 1999. *Development of odour-baited traps for Glossina swynnertoni (Diptera: Glossinidae)*. *Bulletin of Entomological Research* 89: 255–261.
- Newstead, R., Evans, A.M. & Potts, W.H.** 1924. *Guide to the study of tsetse-flies*. *Memoirs Liverpool School of Tropical Medicine* 1: 1–382.
- Njiokou, F., Simo, G., Mbida Mbida, A., Truc, P., Cuny, G., & Herder, S.** 2004. *A study of host preferences in tsetse flies using a modified PCR-heteroduplex technique*. *Acta Tropica* 91: 117–120.
- Okoth, J.O.** 1991. *Description of a mono-screen trap for Glossina fuscipes fuscipes Newstead in Uganda*. *Annals of Tropical Medicine and Parasitology* 85: 309–314.
- Owaga, M.L.A.** 1985. *Observations on the efficacy of buffalo urine as a potent olfactory attractant for Glossina pallidipes Austen*. *Insect Science and its Applications* 6: 561–566.
- Paling, R.W., Moloo, S.K. & Leak, S.G.A.** 1987. *Epidemiology of animal trypanosomiasis on a cattle ranch in Kilifi, Kenya*. *Acta Tropica* 44: 67–82.
- Patterson, J.S. & Schofield, C.J.** 2005. *Preliminary study of wing morphometry in relation to tsetse population genetics*. *South African Journal of Science* 101: 1–3.
- Potts, W.H.** 1973. *Glossinidae: tsetse flies*. In Smith, K.G.V., ed. *Insects and other arthropods of medical importance*. British Museum (Natural History), London, UK.
- Programme Against African Trypanosomiasis (PAAT).** 2002. *Workshop on PAAT-PATTEC harmonisation, 2–3 May 2002, Rome, Italy*. FAO, Rome, Italy.
- Rawlings, P., Ceasay, M.L., Wachter, T. & Snow, W.** 1993. *The distribution of the tsetse flies Glossina morsitans submorsitans and G. palpalis gambiense (Diptera, Glossinidae) in The Gambia*. *Bulletin of Entomological Research* 83: 625–632.
- Rogers, D.J. & Randolph, S.E.** 1991. *Mortality rates and population density of tsetse flies correlated with satellite imagery*. *Nature* 351: 739–741.

- Rohlf, F.J. & Marcus, L.F.** 1993. *A revolution in morphometrics*. Trends in Ecology and Evolution 8: 129–132.
- Solano, P., de la Rocque, S., Cuisance, D., Geoffroy, B., de Meeüs, T., Cuny, G. & Duvallet, G.** 1999. *Intraspecific variability in natural populations of Glossina palpalis gambi-ensis from West Africa, revealed by genetic and morphometric analyses*. Medical and Veterinary Entomology 13: 401–407.
- Solano, P., de la Rocque, S., de Meeüs, T., Cuny, G., Duvallet, G. & Cuisance, D.** 2000. *Microsatellite DNA markers reveal genetic differentiation among populations of Glossina palpalis gambi-ensis collected in the agro-pastoral zone of Sédéradougou, Burkina Faso*. Insect Molecular Biology 9: 433–439.
- Späth, J.** 1997. *Natural host odours as possible attractants for Glossina tachinoides and G. longipalpis (Diptera: Glossinidae)*. Acta Tropica 68: 149–158.
- Thrusfield, M.V.** 1995. *Veterinary epidemiology*. 2nd edition. Blackwell Publishing, London, UK.
- Torr, S.J., Parker, A.G. & Leigh-Browne, G.** 1989. *The responses of Glossina pallidipes Austen (Diptera: Glossinidae) to odour baited traps and targets in southern Somalia*. Bulletin of Entomological Research 79: 99–108.
- Turner, D.A. & Makishe, F.** 1985. *The distribution of Glossina austeni in Zanzibar*, pp. 263–271. In Proceedings: 18th meeting of the International Scientific Council for Trypanosomiasis Research and Control, 4–9 March 1985, Harare, Zimbabwe. OAU/IBAR, Nairobi, Kenya.
- Vale, G.A.** 1971. *Artificial refuges for tsetse flies (Glossina spp.)*. Bulletin of Entomological Research 61: 331–350.
- Vale, G.A.** 1980. *Field studies of the responses of tsetse flies (Glossinidae) and other Diptera to carbon dioxide, acetone and other chemicals*. Bulletin of Entomological Research, 70: 563–570.
- Vale, G.A.** 1998. *Responses of tsetse flies (Diptera: Glossinidae) to vegetation in Zimbabwe: implications for population distribution and bait siting*. Bulletin of Entomological Research 88: Supplement, S7–S59.
- Vale, G.A. & Hargrove, J.W.** 1979. *A method for studying the efficiency of traps for tsetse flies (Diptera: Glossinidae) and other insects*. Bulletin of Entomological Research 69: 183–193.
- Vale, G.A. & Hall, D.R.** 1985. *The use of 1-octen-3-ol and carbon dioxide to improve baits for tsetse flies Glossina spp. (Diptera: Glossinidae)*. Bulletin of Entomological Research 75: 219–231.
- Vreysen, M.J.B.** 2000. *Southern Rift Valley tsetse eradication programme — an analysis of the entomological base-line data collected between October 1998 and September 1999*. Report to the IAEA. IAEA, Vienna, Austria.
- Vreysen, M.J.B.** 2005. *Monitoring sterile and wild insects in area-wide integrated pest management programmes*, pp. 325–361. In Dyck, V.A., Hendrichs, J. & Robinson, A.S., eds. *Sterile insect technique. Principles and practice in area-wide integrated pest management*. Springer, Dordrecht, The Netherlands.
- Vreysen, M.J.B., Khamis, I.S. & Van der Vloedt, A.M.V.** 1996. *Evaluation of sticky panels to monitor populations of Glossina austeni (Diptera: Glossinidae) on Unguja Island of Zanzibar*. Bulletin of Entomological Research 86: 289–296.

- Vreysen, M.J.B., Zhu, Z-R. & Saleh, K.M.** 1998. *Field responses of Glossina austeni to sticky panels on Unguja island of Zanzibar*. *Medical and Veterinary Entomology* 12: 407–416.
- Vreysen, M.J.B., Mebrate, A., Menjeta, M., Banacha, B., Woldeyes, G., Musie, K., Bekele, K. & Aboset, G.** 1999. The distribution and relative abundance of tsetse flies in the Southern Rift Valley of Ethiopia. Preliminary survey results, pp. 202–213. *In Proceedings: 25th meeting of the International Scientific Council for Trypanosomiasis Research and Control, 27 September–1 October 1999, Mombasa, Kenya*. OAU/IBAR, Nairobi, Kenya.
- Vreysen, M.J.B., Gerardo-Abaya, J. & Cayol, J.P.** 2007. Lessons from area-wide integrated pest management (AW-IPM) programmes with an SIT component: An FAO/IAEA perspective, pp. 723–744. *In Vreysen, M.J.B., Robinson, A.S. & Hendrichs, J., eds. Area-wide control of insect pests. From research to field implementation*. Springer, Dordrecht, The Netherlands.
- Weir, B.S. & Cockerham, C.C.** 1984. *Estimating F-statistics for the analysis of population structure*. *Evolution* 38: 1358–1370.
- Williams, B., Dransfield, R. & Brightwell, R.** 1990. *Monitoring tsetse populations. 1. The intrinsic variability of trap catches of Glossina pallidipes at Nguruman, Kenya*. *Medical and Veterinary Entomology* 4: 167–179.
- Wint, W.** 2001. *Kilometre resolution tsetse fly distribution maps for the Lake Victoria Basin and West Africa*. FAO/IAEA Joint Division, Insect Pest Control Section, IAEA, Vienna, Austria, December 2001.
- Wint, W.** 2002. *Environmental predictors of tsetse distributions / integrated control of pathogenic trypanosomes and their vectors*. Newsletter Number 4.
- Wint, W.** 2003. *Tsetse distribution data, May 2003*. Data CD prepared by Environmental Research Group Oxford Ltd for the Insect Pest Control Section, Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture, International Atomic Energy Agency.
- World Health Organization (WHO).** 1997. *Manual for sleeping sickness control*. WHO, Geneva, Switzerland.

Annex 1

Links to web pages

Note that web sites are ephemeral and although available at the time of writing, their continued availability cannot be assured.

http://www.nri.org/tsetse/FAQ/biconical.html	Trap designs
http://www.nri.org/tsetse/FAQ/pyramid.html	Trap designs
http://www.nri.org/tsetse/FAQ/pyramids.html	Trap designs
http://www.nri.org/tsetse/FAQ/epsilon.html	Trap designs
http://www.nri.org/tsetse/FAQ/nzi.html	Trap designs
http://www.nri.org/tsetse/FAQ/ngu.html	Trap designs
http://www.nri.org/tsetse/FAQ/htrap.htm	Trap designs
http://www.sleeping-sickness.com	Trap designs and trapping
http://www.vestergaard-frandsen.com	Commercial supply of traps and trap materials
http://www.sleeping-sickness.com/index.htm	IRD: La Maladie du Sommeil; Resource site for manuals and other information for control of tsetse flies and sleeping sickness.
www.fao.org/paat/html/home.htm	PAAT
http://www.fao.org/ag/againfo/programmes/en/paat/documents/manuals/vol4.html	FAO Tsetse Training Manual Vol. 4.
http://www.fao.org/ag/againfo/programmes/en/paat/documents/manuals/vol5.html	FAO Tsetse Training Manual Vol. 5.
http://www.navtechgps.com/pdf/Garmin_PaperMaps.pdf	Garmin manual on use of maps
www.nri.org/tsetse/Plan	Models for planning tsetse operations
http://www.vgt.vito.be/	Vegetation satellite images
http://cicci2002.dynamicweb.dk/Files/Filer/Textiles_Tsetse_fly_fabric.pdf	
www.mpl.ird.fr/entomo_medicale/resumeTSEuk.html	IRD (formerly ORSTOM) site for the CD-Rom for identification of tsetse (Les Glossines ou Mouche tsetse)

http://www.mpl.ird.fr/morphometrics	Providing principles of morphometrics and providing free software for data analysis
http://igskmncnwb015.cr.usgs.gov/adds	Africa Data Dissemination Service
http://www.tanglefoot.com	Supply of sticky glue for traps
http://www.clarklabs.org	RISI GIS software
http://www.esri.com/index.html	ESRI — ArcView GIS software
http://www.ilri.cgiar.org/gis	ILRI GIS data, and maps
http://ergodd.zoo.ox.ac.uk	Predictive mapping
http://www.maproom.psu.edu/dcw	Digital charts of the World (GIS base maps)
http://www.fcc.gov/mb/audio/bickel/DDDMSS-decimal.html	Coordinate conversion
http://www.directionsmag.com/latlong.php	Coordinate conversion
http://www.geology.enr.state.nc.us/gis/latlon.html	Coordinate conversion
http://www.who.int/docstore/water_sanitation_health/vectcontrol/begin.htm#Contents	WHO Vector control manual
http://www.novalynx.com/110-ws-16.html ; http://fischer-barometer.de/english	Weather stations
http://www.esri.com/software/arcexplorer/index.html	ArcExplorer free GIS software

Annex 2

Glossary

Area-Wide (Eradication/Control)	Area-wide eradication or control refers to eradication or control of a total, discrete, circumscribed population (in this case of tsetse flies). It does not necessarily have to be a large area, but could be for example, a small 5 km × 5 km island in Lake Victoria provided there was no regular movement of tsetse from that island to another nearby area of infestation. In contrast it could be a very large, regional infestation of tsetse such as that targeted by RTTCP, provided it has distinct limits of distribution and all of that area of distribution is included in the area-wide approach.
Datum	A point, line, or surface used as a reference, in surveying, mapping, or geology
Deme	A local, usually stable population of interbreeding organisms of the same kind or species
Ecotone	A transitional zone between two communities containing the characteristic species of each
Eradication	The elimination of a (tsetse) species from a given area — it does not mean global elimination (extinction).
Suppression	Reducing the numbers of a tsetse population in a given area so that the density falls below an unspecified level, resulting in reduced disease transmission to humans or livestock. The objective may be to reduce the population to a level at which SIT becomes feasible rather than for disease control.
Shapefile	A popular file format for GIS layers. The shapefile specification requires that each shapefile be composed of only one type of vector layer: either point or line or area. A “shapefile” is not a single computer file but rather a collection of at least three actual files with nearly identical names: the base name of all three is the same whereas the extensions are different. So, for example a GIS layer of traps would be composed of three files- <i>traps.shp</i> , <i>traps.shx</i> and <i>traps.dbf</i> . In addition, the coordinate system of a shapefile can be specified using an additional file with the <i>*.prj</i> extension.

Vector layer

One of the two classifications of GIS data (see raster). A vector layer is specified by a collection of precise coordinates for each feature within the layer. If the features are points, then each point is represented by exactly one pair of coordinates. For line features, each line is represented by an ordered list of coordinate pairs, one pair for each node (or “corner”) of the line. A polygon or area feature is similar to a line feature with one coordinate pair for each vertex of the polygon, but in addition, the first pair of coordinates and the last pair are exactly the same point.

Vector layers will typically be linked to a table of attribute data, and each feature in the layer can have entries for all the attributes

Raster layer

A raster is a rigid rectangular matrix of points (called “pixels”), where each point contains a single numeric value. The distance between the points or pixels determines the resolution of the raster. The numeric value can represent colours, elevations, vegetation types, etc. Aerial photography, satellite imagery, and elevation layers are typically supplied as raster layers. Within GIS, many mathematical calculations can be applied on a single raster, or between two or more rasters to obtain new information. For example, a raster layer of vegetation type, overlaid with a raster of elevation, and a third raster mean temperature can give a predictive map for tsetse abundance.

Cadastral layer

A vector layer of land ownership, or administrative boundaries. Often these layers are commissioned by a government mapping office, and created by a professional team of surveyors.

Topographic map

Many government mapping offices publish printed maps at a standard scale of 1:50 000 or 1:24 000. These maps usually include roads, residential areas, points of interest, streams, and contours of elevation. These maps are often scanned (with a special highly accurate scanner) and a high resolution image file created from them. They are then geo-referenced and saved in an image format known as “*geo-tiff*” for viewing in GIS. Scanned topographic maps can serve as a good background image for overlaying other GIS layers.

Annex 3

Acronyms

ADB	African Development Bank
AVHRR	Advanced Very High Resolution Radiometer
AW-IPM	Area-Wide Integrated Pest Management
CIRAD	Centre de Coopération Internationale en Recherche Agronomique pour le Développement
CIRDES	Centre International Recherche-Développement en Zone Subhumide
DAVID	Disease And Vector Integrated Database
DCW	Digital Charts of the World
DLS	Department of Livestock Services
DRC	Democratic Republic of Congo
ERGO	Ecological Research Group, Oxford
ESRI	Environmental Systems Research Institute Inc
FAO	Food and Agriculture Organization of the United Nations
FITCA	Farming in Tsetse Controlled Areas
GIS	Geographical Information System
GPS	Global Positioning System
IAEA	International Atomic Energy Agency
ICIPE	International Centre for Insect Physiology and Ecology
ILRAD	International Laboratory for Research on Animal Diseases
ILRI	International Livestock Research Institute
IRD	Institut de Recherche pour le Développement (formerly ORSTOM)
ITC	International Trypanotolerance Centre Or: Insecticide-Treated Cattle
KARI –TRC	Kenyan Agricultural Research Institute — Trypanosomiasis Research Centre
KEMRI	Kenyan Medical Research Institute
NASA	National Aeronautical and Space Agency
NOAA	National Oceanographic and Atmospheric Administration
NRI	Natural Resources Institute
PAAT	Programme Against African Trypanosomiasis
PATTEC	Pan-African Tsetse and Trypanosomiasis Eradication Campaign
PAAT-IS	Programme Against African Trypanosomiasis Information System
PCR	Polymerase Chain Reaction
PDA	Personal Digital Assistant
RS	Remote Sensing

RTTCP	Regional Tsetse and Trypanosomiasis Control Programme (southern Africa)
SARD	Sustainable Agricultural and Rural Development
SIT	Sterile Insect Technique
SPOT	Satellite Pour l'Observation de la Terre
TIRRS	Tsetse Intervention Recording and Reporting System
USGS	United States Geological Service
UTM	Universal Transverse Mercator
WGS	World Geodetic System
WHO	World Health Organization

Annex 4

Suppliers

Tsetse traps and fabrics

Vestergaard-Frandsen: <http://www.vestergaard-frandsen.com/>

GPS instruments

Garmin: <http://www.garmin.com/garmin/cms/site/us>

Magellan: <http://www.magellangps.com/>

Trimble: <http://www.trimble.com/index.aspx>

Odour attractants

Sigma Aldrich (http://www.sigmaaldrich.com/Local/SA_Splash.html), Suppliers of 3-Methylphenol and 4-Methylphenol

International Flavours & Fragrances I.F.F. (Great Britain) Ltd. (<http://www.iff.com/Internet.nsf/0/36C4E92098507FE085256C0E000C5636>) Suppliers of Octenol

Great Lakes Fine Chemicals (UK) (<http://www.excelsyn.com/>) Suppliers of 4-propylphenol or 3-isopropylphenol as substitutes for 3-propylphenol which is not easily obtained

Appropriate Applications Suppliers of 4-propylphenol or 3-isopropylphenol as substitutes for 3-propylphenol which is not easily obtained

Weather station equipment

Appropriate Applications Novalynx: <http://www.novalynx.com/110-ws-16.html>

Meteoclima: <http://fischer-barometer.de/english/>

FAO ANIMAL PRODUCTION AND HEALTH GUIDELINES

1. Collection of entomological baseline data for tsetse area-wide integrated pest management programmes, 2008 (E)

Availability: November 2008

Ar - Arabic	Multil - Multilingual
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E - English	** In preparation
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The FAO Animal Production and Health Guidelines are available through the authorized FAO Sales Agents or directly from Sales and Marketing Group, FAO, Viale delle Terme di Caracalla, 00153 Rome, Italy.

Area-wide integrated pest management (AW-IPM) entails the integration of different control tactics against an entire pest population within a circumscribed area, while given adequate attention to human health and the environment. For most insect pests including tsetse, AW-IPM results in more sustainable pest control and the concept has gained significantly in importance in the last decade.

Most of AW-IPM programmes are management intensive and technically complex, requiring an in-depth knowledge of the ecology and population dynamics of the target insect. Before embarking on a tsetse AW-IPM control programme a detailed entomological baseline data survey needs to be implemented to collect essential data on tsetse species present in the target area, their distribution, and seasonal and spatial dynamics of the population. Especially when the target area is large, the surveys need to be conducted in carefully selected sites that are representative for larger areas.

These guidelines provide, aside from some basic information on the biology of tsetse flies, guidance on the development and implementation of an entomological survey to collect essential baseline data using modern spatial tools such as geographic information systems (GIS), satellite imagery, remote sensing, land use land cover maps, the Global Position System, etc. The document also provides guidance on the use of a specifically designed database for tsetse entomological surveys in the context of an AW-IPM programme.

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