UNIVERSITY OF NOTTINGHAM

Department of Archaeology

Early Roman London revisited: an archaeobotanical investigation of its economy and land management practices with reference to the Bloomberg site.

by

Robert Francis

Module MR4120

Dissertation presented for MSc (by Research) in Archaeology.

August 2017

I certify that:

a) The following dissertation is my own original work.

b) The source of all non-original material is clearly indicated.

c) All material presented by me for other modules is clearly indicated.

d) All assistance received has been acknowledged.

Signed: Robert Francis

Abstract

Waterlogged plant macrofossils were analysed from 15 samples from the Roman phases of the Bloomberg site in the Walbrook valley, London. Over 23000 seeds belonging to over 100 taxa, including cereals, food plants, exotics and weed species were identified. The assemblage represents an important contribution to our understanding of landscape management practices, the diet and economy of the area and the town during the Early Roman period. In particular this dissertation provides evidence of the large scale dumping of so called 'stabling waste' across the site in an effort to raise the ground level. By applying and critically evaluating an autecological methodology to the identified species, it was possible to determine the constituents of the dumped waste revealing that it was in most cases a mixture of animal bedding, meadow hay, crop processing by-products and nitrophilous ruderal weeds. The research also provides an insight into the inhabitants' diet, with evidence of exotic imports being present from the earliest recorded stage of Roman occupation as well as potential locally grown introductions, though whether these were intentional or invasive is still unclear. The results also indicate the potential reliance on foraged food. Finally the research attempted to provide evidence of the local wild flora growing in the area, a difficult task in light of the mixed assemblage material. The tentative results show a mix of river and riverbank species that probably were growing along the Walbrook. The area would also have had small groups of dense thorny scrub trees. As well as a variety of nitrophilous wild species growing untouched on the midden material.

Acknowledgements

I would like to thank my supervisors Dr Alexandra Livarda and Dr William Bowden from Nottingham University whose instruction, support and advice have been indispensable, as well as Dr Julie-Anne Bouchard-Perron whose advice has been so helpful. I would also like to give my greatest thanks to the Museum of London Archaeology for the archaeological assemblage on which this dissertation is based, especially to Karen Stewart and Anne Davis for their advice and comments. Finally I would like to thank my wife and son for their encouragement, understanding and patience.

Contents

List of Figures	6
List of Tables	8
List of Appendices	9
1. Introduction, aims and objectives	10
1.1. Site description	13
2. Research background	22
2.1 The origins and chronology of Roman London	22
2.2. Economy and social structure in Early Roman London	29
2.3. The archaeobotany of Late Iron Age and Roman Britain	33
2.4 The archaeobotany of Roman London	39
3. Methodology	42
4. Taphonomy	49
5. Results	52
5.1. Other organic remains	58
6. Analysis of the Bloomberg assemblage by context and period	62
7. Discussion	75
7.1. Autecology	76
7.2. Evidence of food and useful plants and their contribution to society and economy in Early Roman London	79
7.3. What is the evidence for dumped refuse and stable waste?	90
7.4. Reconstructing the natural environment: tricky but not futile	101
8. Conclusion	112
9. Further research	115
Bibliography	116
Appendices	129

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

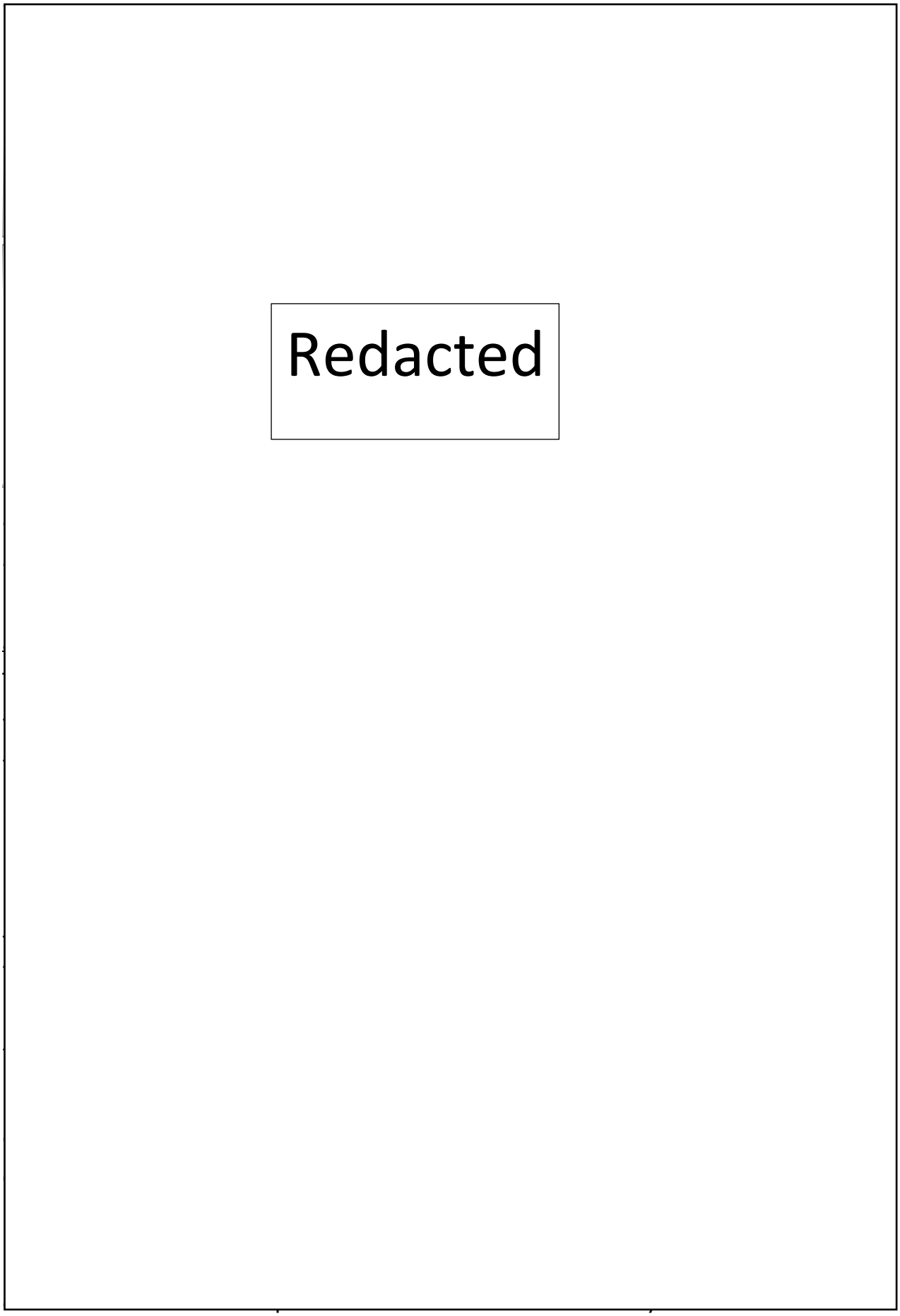
Redacted

Redacted

Redacted

Redacted

Redacted


Redacted

Redacted

Redacted

Redacted

fourth century AD (Hill & Rowsome 2011, 147).

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

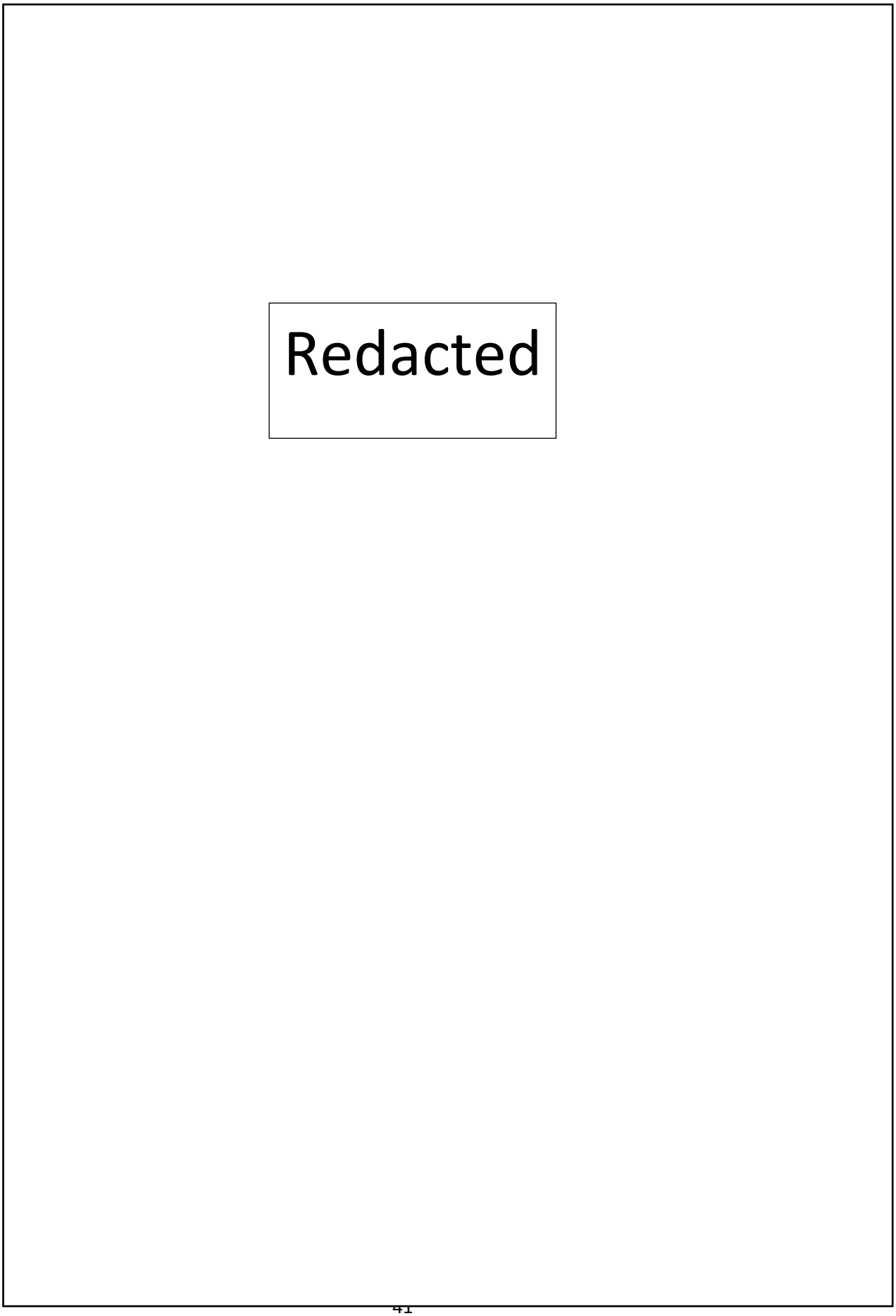
Redacted

Redacted

Redacted

Redacted

Redacted


Redacted

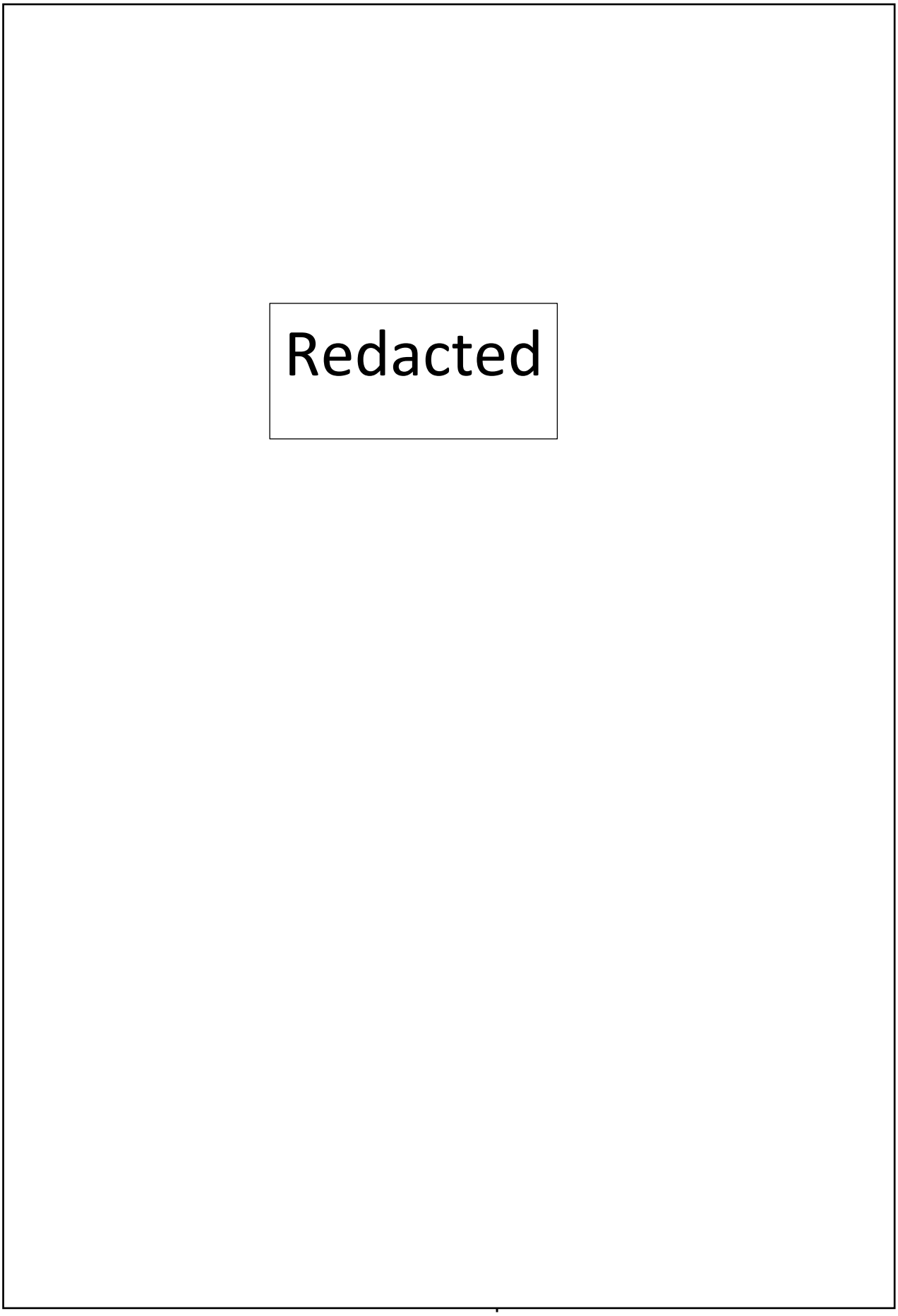
Redacted

Redacted

Redacted

Redacted

Redacted


Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

80)

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

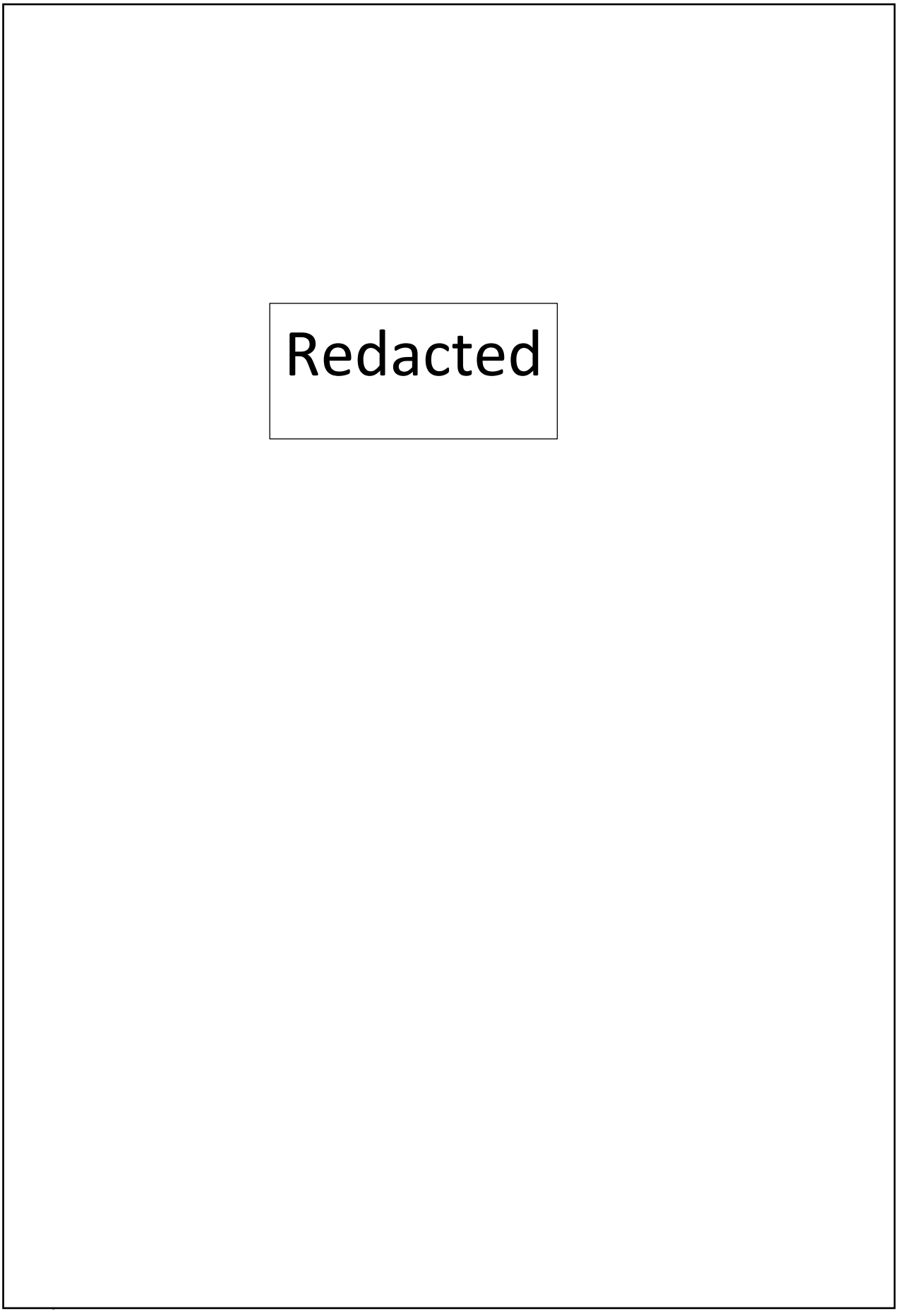
Redacted

Redacted

Redacted

Redacted

Redacted


Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

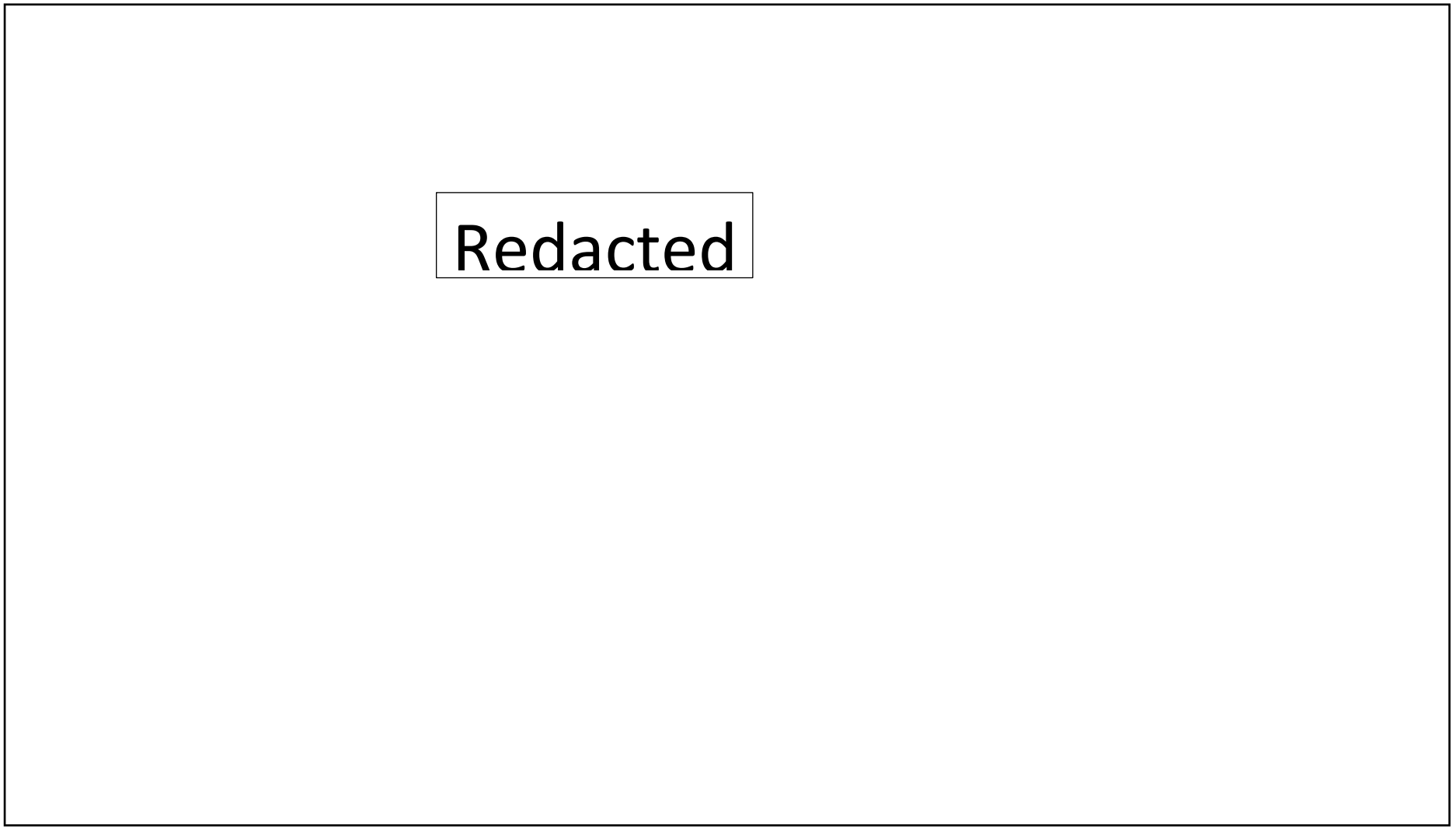
Redacted

Redacted

Redacted

Redacted

Redacted


Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

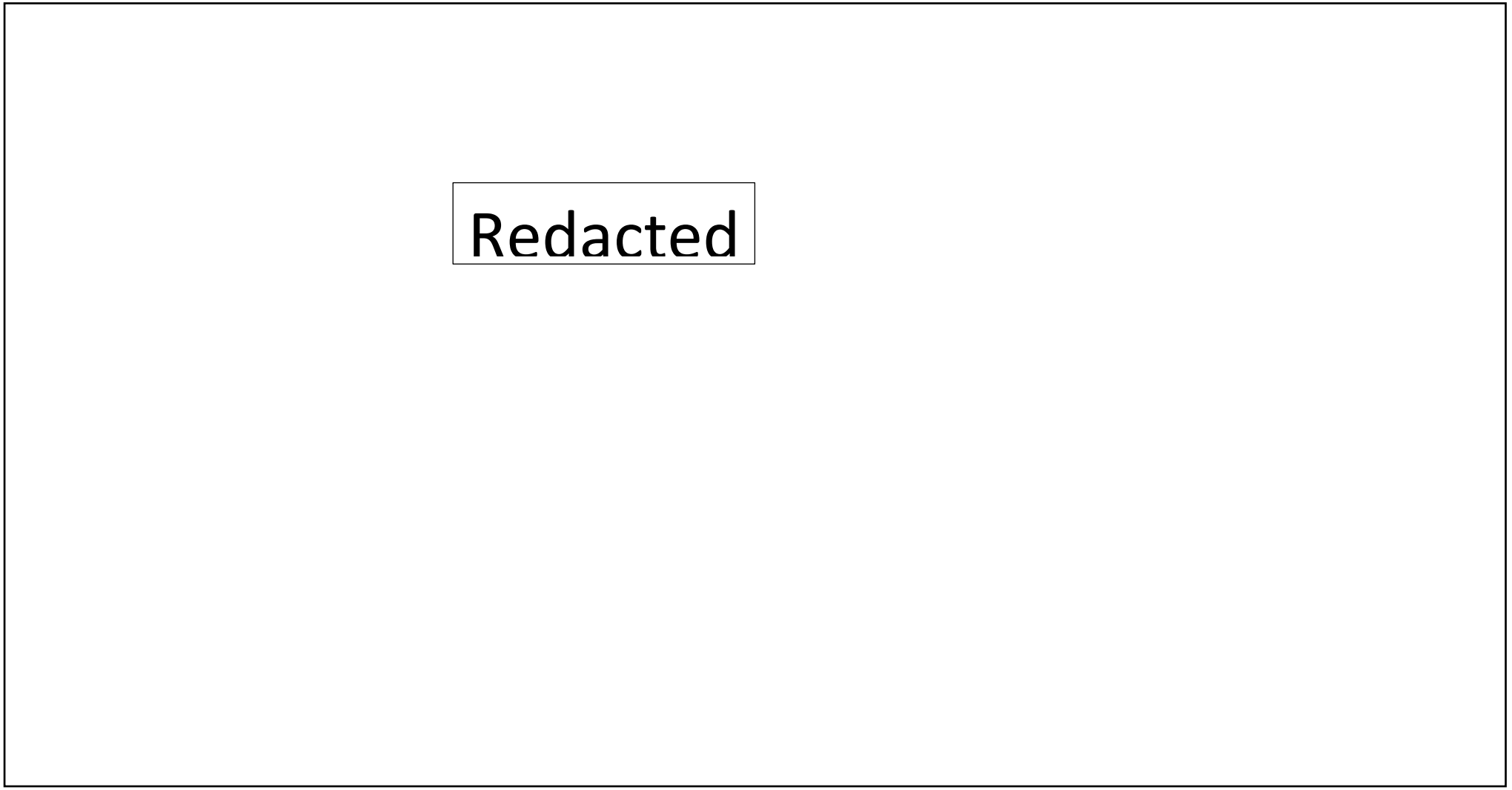
Redacted

Redacted

Redacted

Redacted

105


Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

Bibliography

Alcock, J. P. 2001. *Food in Roman Britain*. Stroud: Tempus Publishing Ltd.

Bakels, C.C., &W. Dijkman 2000: Maastricht in the First Millennium AD, the Archaeobotanical Evidence, *Archeologica Mosana* 2, Maastricht.

Bird, D. G. 2002. The events of A.D. 43: further reflections, *Britannia* 33, 257–63.

Birley, A. R. 2005. *The Roman Government of Britain*. Oxford: OUP.

Bogaard, A. 2004. *Neolithic Farming in Central Europe*. London: Routledge.

Bowman, A. K. and Thomas, J. D. 1994. *The Vindolanda writing-tablets*. London: British Museum Press.

Boyd, P. 1980. Carbonised cereals and associated weed seeds from Roman London, A.D.60. *AML Report* OS 3.

Brown, A. G., Meadows, I., Turner, S. D. and Mattingly, D. J. 2001. Roman vineyards in Britain: stratigraphic and palynological data from Wollaston in the Nene Valley, England, *Antiquity* 75, 275– 87.

Bryan, J., Tetreau, M. and Watson, S. (eds.). 2014. Bloomberg, London, Queen Victoria Street, London EC4N 8AG. Post-excavation assessment and updated project design (draft report). London: Museum of London Archaeology.

Cappers, R., Bekker, R. M. and Jans, J. E. A. 2006. Digital Seed Atlas of the Netherlands, *Groningen Archaeological Studies* 4. Eelde: Barkhuis Publishing

Cappers, R. T. J. 1995. A palaeoecological model of the interpretation of wild plant species, *Vegetation History and Archaeobotany* 4, 249–257.

Carrott, J., Hall, A., Hughes, P., Jaques, D., Johnstone, C., Kenward, H., Large, F., Usai, R. and Worthy, D. 1998. An assessment of biological remains from excavations at land adjacent to the former Gibraltar Farm, Kingswood, Kingston upon Hull (site code: GIB97). Reports from the *Environmental Archaeology Unit*, York 98/6, 13.

Cool, H. 2006. *Eating and Drinking in Roman Britain*. Cambridge: Cambridge University Press.

Creighton, J. 2006 *Britannia: The Creation of a Roman Province*. Abingdon: Routledge.

Cunliffe, B. 2000. *The Danebury Environs Programme. The Prehistory of a Wessex Landscape, Volume 1: Introduction*. English Heritage and Oxford University Committee for Archaeology, Monograph 49, Oxford.

Cunliffe, B. 1984. Relations between Britain and Gaul in the First Century B.C. and the Early First Century A.D., in S. Macready and F. H. Thompson (eds), *Cross-Channel Trade between Gaul and Britain in the Pre-Roman Iron Age.* London: Society of Antiquaries 3-23.

Davis, A. 1993. Plant remains. In Milne, G. and Wardle, A (ed.) *Early Roman development at Leadenhall Court, London and related research*. LAMAS 44. 59-67.

Diekmann, M. 2003. Species indicator values as an important tool in applied plant ecology a review, *Basic and Applied Ecology* 4(6), 493–506.

Fenwick, R. S. H. and Omura, S. 2015. Smoke in the eyes? Archaeological evidence for medicinal henbane fumigation at Ottoman Kaman-Kalehöyük, Kırşehir Province, Turkey. *Antiquity*, 89(346), 905–921.

Frere, S. S. and Fulford, M. 2001. The Roman Invasion of A.D. 43. *Britannia* 32, 45–55.

Fulford, M. 1985. Excavations on the Sites of the Amphitheatre and Forum-Basilica at Silchester, Hampshire: an interim report. *The Antiquaries journal* 6, 39–81.

Gale, R. and Cutler, D. 2000. *Plants in archaeology*. London: Royal Botanical Garden Kew.

Giorgi, J. 2001. The plant remains from Fennings Wharf, pp.220-227. In Watson, B., Brigham, T. and Dyson, T. (eds.) *London Bridge: 2000 years of a river crossing.* MOLAS monograph 8.

Gray, L. 2002. The plant remains. In Howe, E. (ed.) *Roman defences and medieval industry. Excavations at Baltic House, City of London*. MoLAS monograph 7.104-111.

Greig, J., 1988. The interpretation of some Roman well fills from the midlands of England. In: Küster, H. (Ed.), *Der Prahistorische Mensch und seine Umwelt.* Theiss, Stuttgart, 367-381.

Greig, J. 1984. The palaeoecology of some British hay meadow types. In: W. Van Zeist and W. A. Casparie (eds.), *Plants and Ancient Man: Studies in Palaeoethnobotany.* Rotterdam: A. A. Balkema. 213-226.

Hall, A.R., and Kenward, H.K. 1990: *Environmental Evidence from the Colonia: General Accident and Rougier Street*, The Archaeology of York 14(6), London/York.

Hall, A.R. 1986. Mediaeval Biology: The fossil evidence for plants in Medieval towns. *Biologist* 33, 262-267.

Hawkes, G. 1999. Beyond Romanization: The creolization of food. A framework for the study of faunal remains from Roman sites. *Papers from the Institute of Archaeology*. 10.89–95

Hill, J. and Rowsome, P. 2011. *Roman London and the Walbrook stream crossing: excavations at 1 Poultry and vicinity, City of London*. MoLA Monograph Series 37.

Hill, M. O., Mountford, J. O., Roy, D. B. and Bunce, R. G. H. 1999. *Ellenberg's indicator values for British plants*. ECOFACT Volume 2 Technical Annex, Huntingdon, Institute of Terrestrial Ecology, 46.

Hind, J. G. F. 1989. The Invasion of Britain in A.D. 43 – An Alternative Strategy for Aulus Plautius. *Britannia* 20, 1–21.

Jacomet, S. 2006. *Identification of cereal remains from archaeological sites.* IPNA, Universität Basel.

Jones, G., Charles, M., Bogaard, A. and Hodgson, J. G. 2010. Crops and weeds: the role of weed functional ecology in the identification of crop husbandry methods, *Journal of Archaeological Science* 37, 70–77.

Jones, G. 2002. Weed ecology as a method for the archaeobotanical recognition of crop husbandry practices, *Acta Palaeobotanica* 42, 185-193.

Jones, M. 1996. Plant exploitation, in T. C. Champion and J. R. Collis (eds). *The Iron Age in Britain and Ireland. Recent Trends*, Sheffield: J.R. Collis Publications, 29-40.

Jones, M. K. 1991. Food production and consumption, in R. F. J. Jones (ed.). *Roman Britain: recent trends*, Sheffield: J.R. Collis Publications, 21-28.

Latalowa, M., Badura, M., & Jarosińska, J. 2003. Archaeobotanical samples from non-specific urban contexts as a tool for reconstructing environmental conditions (examples from Elbląg and Kołobrzeg, northern Poland). *Vegetation History and Archaeobotany*, 12(2), 93-104.

Livarda, A. and Orengo, H. 2015. Reconstructing the Roman London flavourscape: new insights into the exotic food plant trade using network and spatial analyses, *Journal of Archaeological Science* 55, 244–252.

Livarda, A. and Van der Veen, M. 2008. *Social access and dispersal of condiments in North-West Europe from the Roman to the medieval period*, Vegetation History and Archaeobotany 17, 201-209.

Lodwick, L. 2016. Agricultural innovations at a Late Iron Age oppidum: Archaeobotanical evidence for flax, food and fodder from Calleva Atrebatum, UK, *Quaternary International*, doi: 10.1016/j.quaint.2016.02.058

Kenward, H. and Hall, A. 1997. Enhancing bioarchaeological interpretation using indicator groups: stable manure as a paradigm, *Journal of Archaeological Science* 24, 663-673.

Orengo, H. and Livarda, A. 2016. The seeds of commerce: a network analysis-based approach to the Romano-British transport system, *Journal of Archaeological Science* 66, 21-35.

Maloney. C & de Moulins, D. 1990. *The upper Walbrook in the Roman period. The archaeology of Roman London* Volume 1. Council for British Archaeology Research Report 69. London: The Museum of London and the Council for British Archaeology.

Mann, J. 1998. London as a Provincial Capital. Britannia 29, 336-339

Marsden, P. 1987, *The Roman Forum Site in London: discoveries before 1985*. London: Her Majesty's Stationary Office.

Mattingly, D. 2006. *An Imperial Possession. Britain in the Roman Empire*. London: Penguin.

Millett, M. 1992. *The Romanization of Britain. An Essay in Archaeological Interpretation*. Cambridge: Cambridge University Press.

Milne, G. 1985. *The Port of Roman London*, London. Routledge.

Nikulina, E. A. 2016. Hair, Bone, Plates and Coprolites: Ancient DNA Research on Rare Archaeological Materials, *Archaeologia Baltica* 23, 38-44.

Perring, D. 2011. Two studies on Roman London. A: London's military origins, *Journal of Roman Archaeology* 24(1), 249-268.

Perring, D. & Brigham, T. 2000 'Londinium and its Hinterland: The Roman Period' in *The archaeology of Greater London: An assessment of archaeological evidence for human presence in the area now covered by Greater London Museum of London* MoLAS. 119-170.

Perring, D. 1991. *Roman London. The Archaeology of London*. London: Seaby.

Rackham, O. 1977. Neolithic Woodland Management in the Somerset Levels: Gavin's Walton Heath and Rowland's tracks. *Somerset Levels Papers 3* 65-71.

Rankin, B, 2013. Archaeologists uncover "Pompeii of the North" during dig in centre of London. *The Daily Mirror*, 9 April 2013. 23.

Reece, R. 2008. Satellite, parasite or just London? In Clark, J., Cotton, J., Hall, J., Sherris, R., Swain, H. (eds.), *Londinium and beyond. Essays on Roman London and its hinterland for Harvey Sheldon*. 33-40. York: Council for British Archaeology.

Reed, K. 2016. Archaeobotanical analysis of Bronze Age Feudvar. In Kroll, H. and Reed, K, (eds.) *Die Archäobotanik Feudvar III*. Würzburger University.

Reitz, E.J. and Shackley M, 2012. *Environmental Archaeology, Manuals in Archaeological Method, Theory and Technique*, London: Springer Science.

Rowsome, P. 2008. Mapping Roman London: identifying its urban patterns and interpreting their meaning, in J. Clark, J. Cotton, J. Hall, R. Sherris and H. Swain (Eds.), *Londinium and beyond. Essays on Roman London and its Hinterland for Harvey Sheldon*, Council for British Archaeology Research Report, vol. 156. York, 25–32.

Sauer E. W. 2002. The Roman invasion of Britain (AD 43) in imperial perspective: a response to Frere and Fulford, *Oxford Journal of Archaeology* 21(4) 333–63.

Schepers, M., Scheepens, J. F., Cappers R. T. J., Van Tongeren, O. F. R., Raemaekers D. C. M. and Bekker R. M. 2013. An objective method based on assemblages of subfossil plant macro-remains to reconstruct past natural vegetation: a case study at Swifterbant, The Netherlands, *Vegetation History and Archaeobotany* 22, 243–255.

Sealey, P. R. and Tyers, P. A. 1989. Olives from Roman Spain: A Unique Amphora Find in British Waters, *The Antiquaries Journal* 69(1), 53-72.

Shaw, H. Montgomery, J. Redfern, R. Gowland, R. and J. Evans 2016. Identifying migrants in Roman London using lead and strontium stable isotopes. *Journal of Archaeological Science*. 66, 57-68.

Smith, D. and Kenward, H. 2011. Roman grain pests in Britain: implications for grain supply and agricultural production, *Britannia* 42, 243-62.

Stace, C. 1995. *New Flora of the British Isles. Cambridge: Cambridge University Press.*

Stewart, K. 2014. Plant Remains, in J. Bryan, M. Tetreau and S. Watson (eds.), Bloomberg, London, Queen Victoria Street, London EC4N 8AG. Post-excavation assessment and updated project design (draft report). London: Museum of London Archaeology, 152-157.

Stukeley, W. 1776. Itinerarium curiosum. London: Baker & Leigh.

Swift, D. 2008: *Roman waterfront development at 12 Arthur Street, City of London*, MoLAS Archaeology Studies Series 19, London.

Tallent-Halsell, N. and Watt, M. 2009. The invasive Buddleja davidii (Butterfly Bush), *Botanical Review* 75, 292–325.

Taylor, J. 2013. Encountering Romanitas: Characterising the Role of Agricultural Communities in Roman Britain, *Britannia* 44, 171-190

Thornbury, W. 1897. *Old and new London: a narrative of its history, its people and its places*. London: Cassell and Company.

Tomlin, R. S. O. 2016. *Roman London's first voices: Writing tablets from the Bloomberg excavations 2010–2014*, Museum of London Archaeology Monograph 72.

Tomlinson, P., 1985. Use of vegetative remains in the identification of dyeplants from waterlogged 9the10th century AD deposits at York. *Journal of Archaeological Science* 12, 269-283.

Valamoti, S. and Charles, M. 2005. Distinguishing food from fodder through the study of charred plant remains: an experimental approach to dung-derived chaff, *Vegetation History and Archaeobotany* 14(4), 528-533.

Van der Veen, M. 2011. *Consumption, Trade and Innovation: Exploring the Botanical Remains from the Roman and Islamic Ports at Quseir al-Qadim, Egypt.* Frankfurt: Africa Magna Verlag.

Van der Veen, M., Livarda, A. and Hill, A. 2008. New plant foods in Roman Britain – dispersal and social access. *Environmental Archaeology* 13(1), 11-36.

Van der Veen, M., Livarda, A. and Hill, A. 2007. The archaeobotany of Roman Britain: current state and identification of research priorities, *Britannia* 38, 181–210.

Van der Veen M and Jones G. 2006. A re-analysis of agricultural production and consumption: implications for understanding of the British Iron Age. *Vegetation History and Archaeobotany* 15(3): 217-228

Van der Veen, M. 1992. *Crop Husbandry Regimes: An Archaeobotanical Study of Farming in northern England 1,000 BC - AD 500*, Sheffield Archaeological Monographs 3. Sheffield: R.J. Collis.

Van der Veen, M. and Fieller, N. 1982. Sampling seeds, *Journal of Archaeological Science* 9, 287–298.

Wallace, L. 2013. The foundation of Roman London: examining the Claudian fort hypothesis, *Oxford Journal of Archaeology* 32(3), 275–291

Watson, B., Brigham, T. and Dyson, T. 2001. *London Bridge; 2000 years of a river crossing.* London: Museum of London Archaeology Service Monograph 8.

Webster, J. 2001. Creolizing the Roman Provinces. *American Journal of Archaeology*, 105, 209-225

Willcox, G. H. 1977. Exotic plants from Roman waterlogged sites in London, *Journal of Archaeological Science* 4, 269-282.

Wilkes, J. J. 1996. The status of Londinium. In Bird, J., Hassall, M. and Sheldon, H. (eds.), *Interpreting Roman London: A Collection of Essays in Memory of Hugh Chapman*. Oxford: Oxbow Books.

Wilmot, T. 1991. *Excavations in the Middle Walbrook Valley*. LAMAS Special Paper 13.

Ancient Works Cited

Aristotle. *Historia Animalium*, Volume III: Books 7-10. Edited and translated by D. M. Balme. Loeb Classical Library. Cambridge: Harvard University Press, 1991.

Caesar. The Gallic War. Translated by H. J. Edwards. Loeb Classical Library. Cambridge: Harvard University Press, 1917.

Cato, *De Agricultura*. Translated by W. D. Hooper, Harrison Boyd Ash. Loeb Classical Library. Cambridge: Harvard University Press, 1934.

Celsus, *De Medicina*. Translated by W.G.Spencer. Loeb Classical Library. Cambridge: Harvard University Press, 1935.

Columella, *De Re Rustica* Book IX. Translated by H.B. Ash, E.S. Forster, and E.H. Heffner. Loeb Classical Library. Cambridge: Harvard University Press, 1993.

Galen. *Method of Medicine*, Books 1-4. Edited and translated by Ian Johnston, G. H. R. Horsley. Loeb Classical Library. Cambridge: Harvard University Press, 2011.

Martial*. Epigrams,* Volume I: Spectacles, Books 1-5. Edited and translated by D. R. Shackleton Bailey. Loeb Classical Library. Cambridge: Harvard University Press, 1993.

Pliny the Elder*. Historia Naturalis.* Translated by H. Rackham. Loeb Classical Library. Cambridge: Harvard University Press, 1938*.*

Internet Sources

The London Archaeological Archive and Research Centre online catalogue. http://archive.museumoflondon.org.uk/laarc/catalogue/quickresults.asp. [Accessed 16 January 2017].

Ordnance Survey online map. https://osmaps.ordnancesurvey.co.uk/osmaps/. [Accessed 16 January 2017].

Preston, C. D., Pearman, D. A., & Dines, T. D. (2002). *New atlas of the British and Irish flora. An atlas of the vascular plants of Britain, Ireland, the Isle of Man and the Channel Islands.* Oxford University Press. Available from: http://www.brc.ac.uk/plantatlas/ [Accessed 12 July 2017].

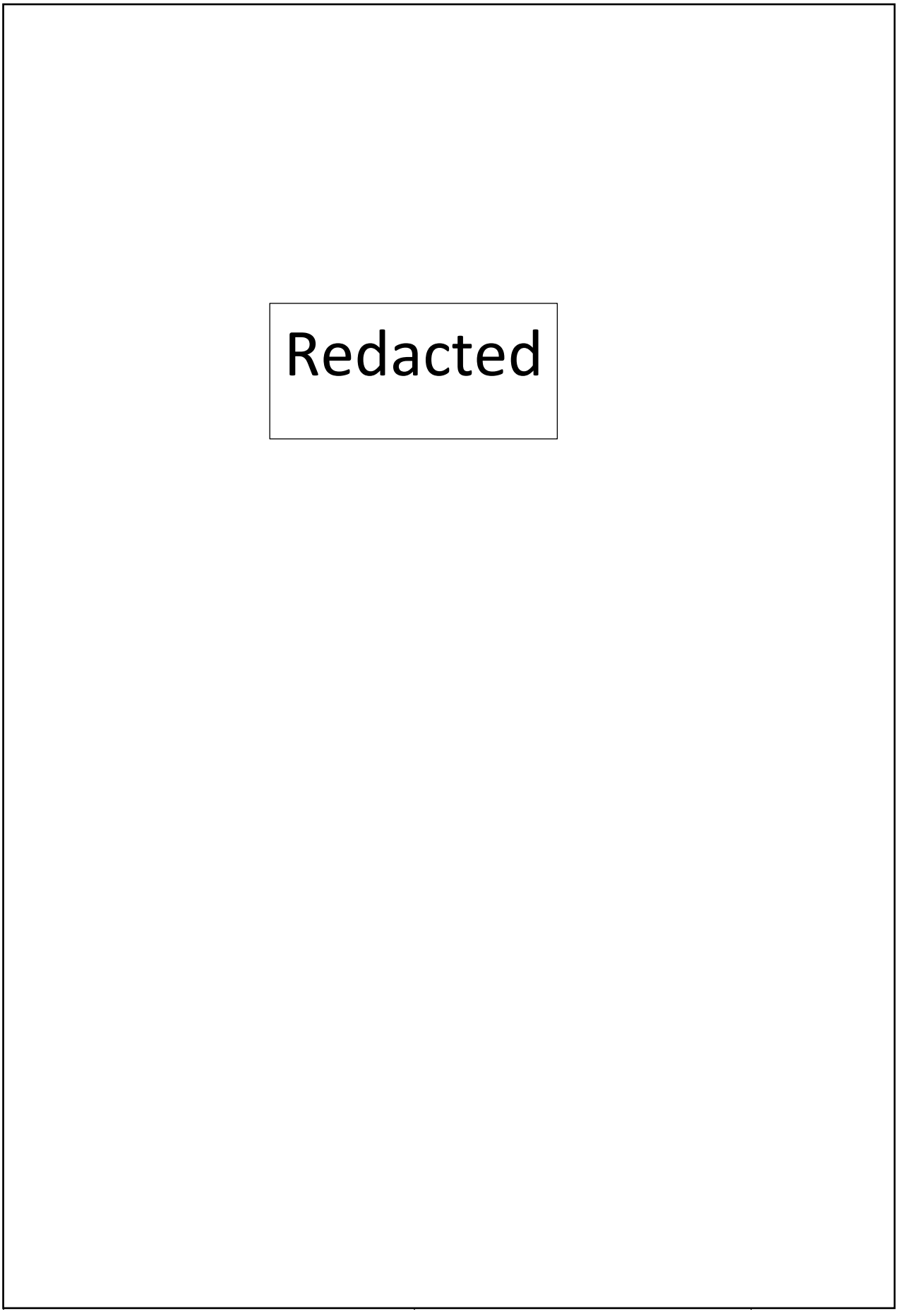
The Rural Settlement of Roman Britain: an online resource. http://archaeologydataservice.ac.uk/archives/view/romangl/index.cfm. [Accessed 16 March 2017].

Tomlinson, P. and Hall, A. 1996. A review of the archaeological evidence for food plants from the British Isles: an example of the use of the Archaeobotanical Computer Database (ABCD). Internet Archaeology 1. http://intarch.ac.uk/journal/issue1/tomlinson_index.html. Date [Accessed 16 January 2017].

Redacted

Redacted

Redacted


Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

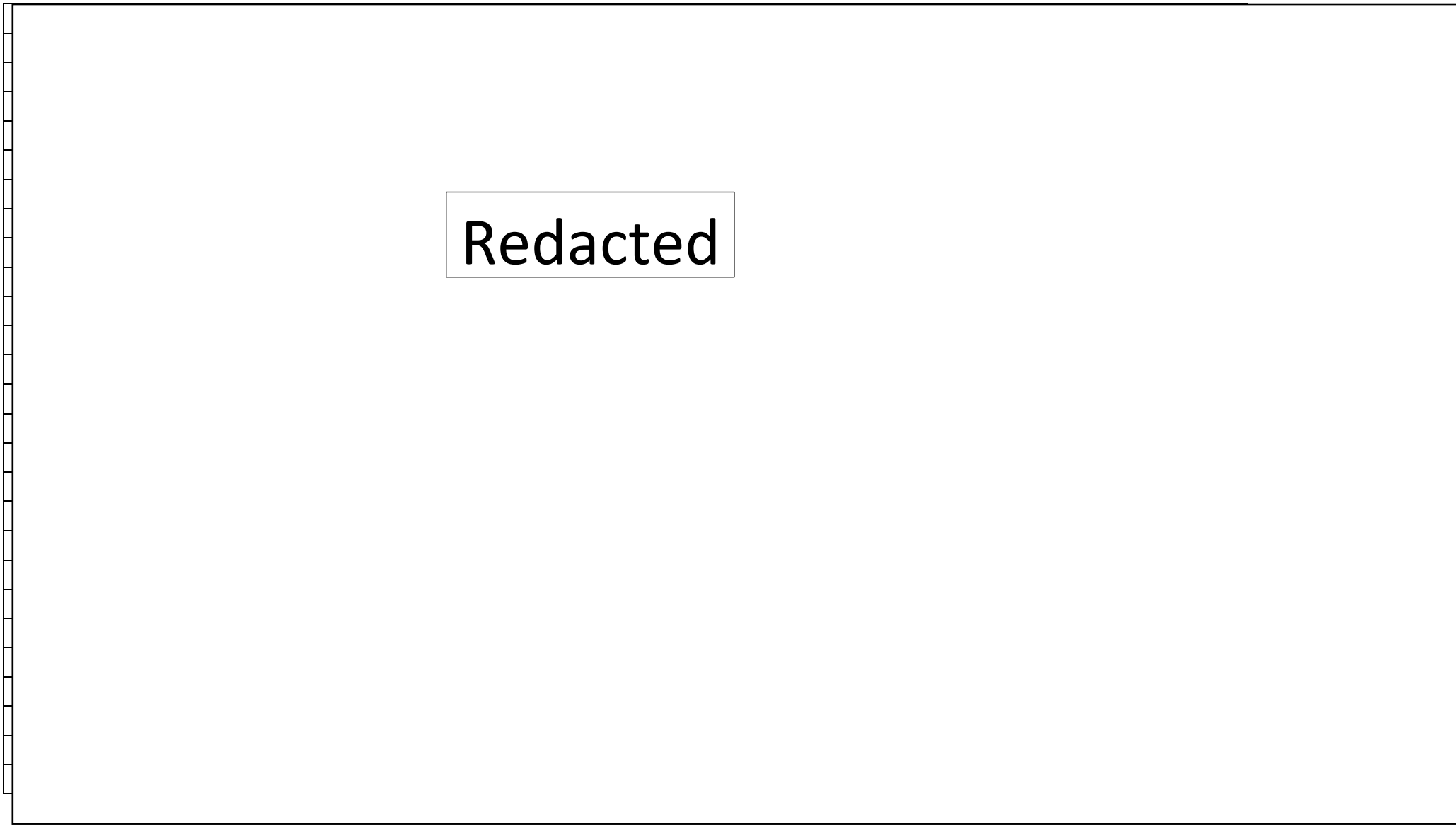
Redacted

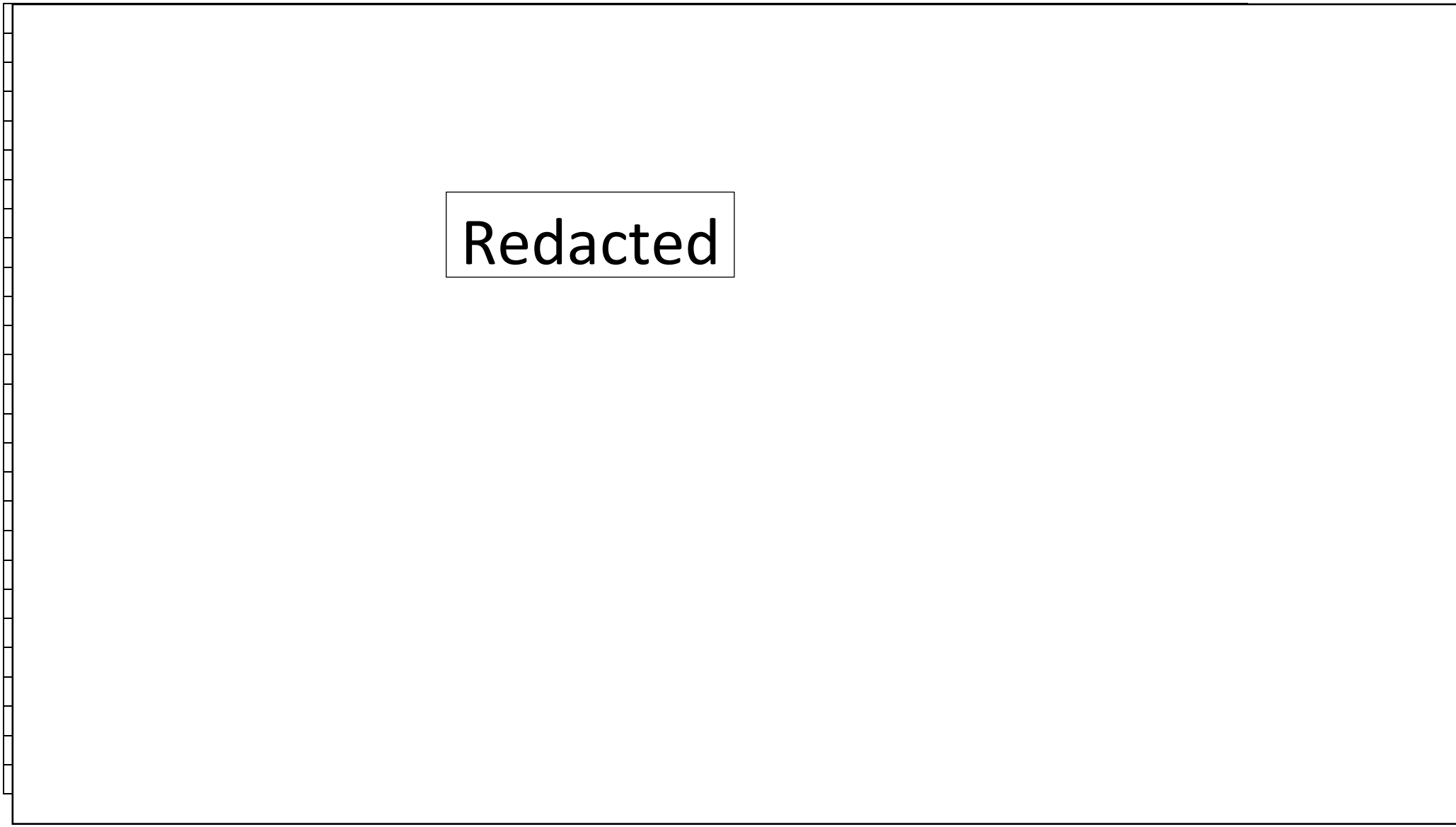
Redacted

Redacted

Redacted

Redacted


Redacted


Redacted

Redacted

Redacted

Redacted

Redacted

Redacted

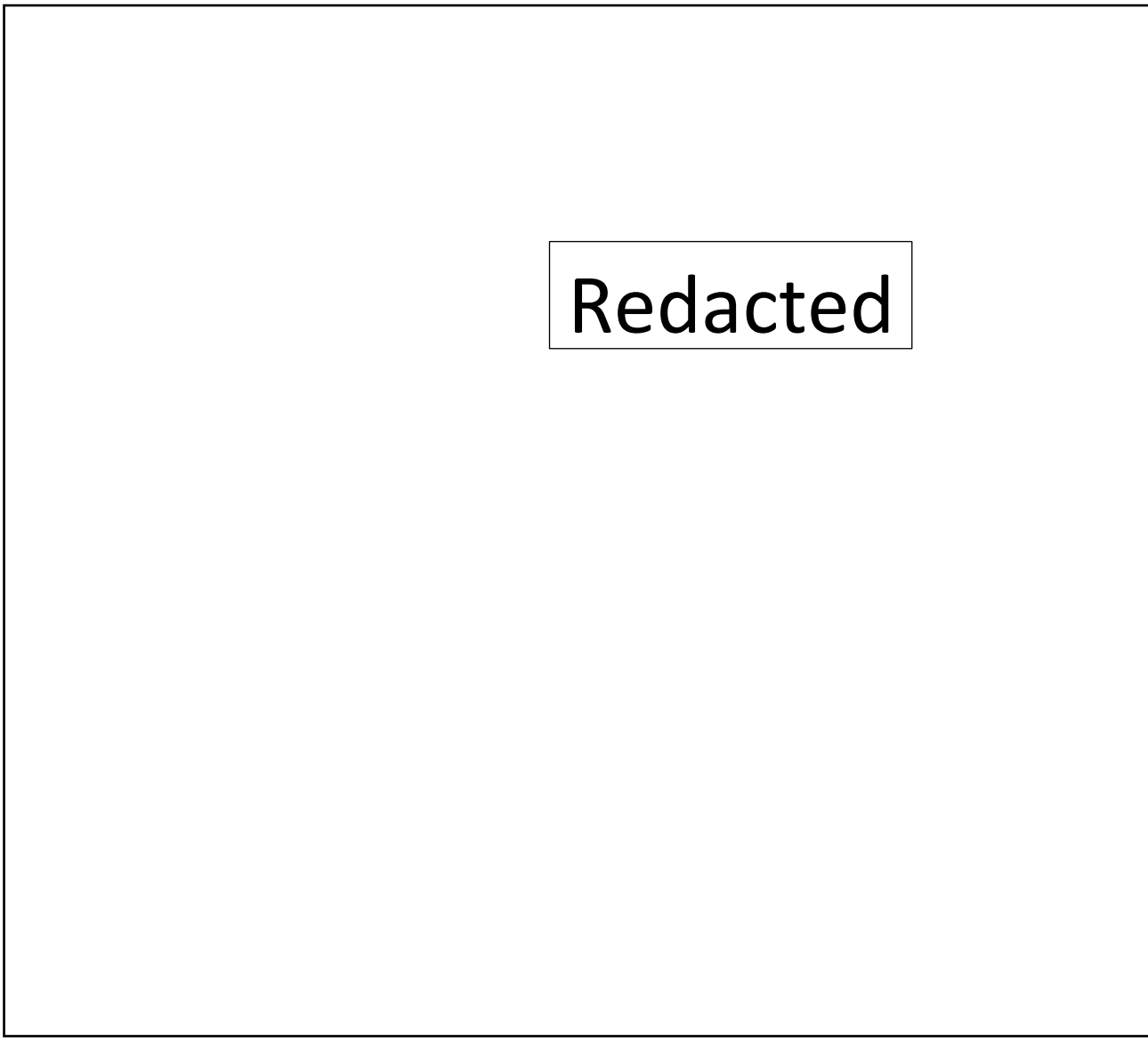
Redacted

150

Redacted

Redacted

Redacted


Redacted

Redacted

Redacted

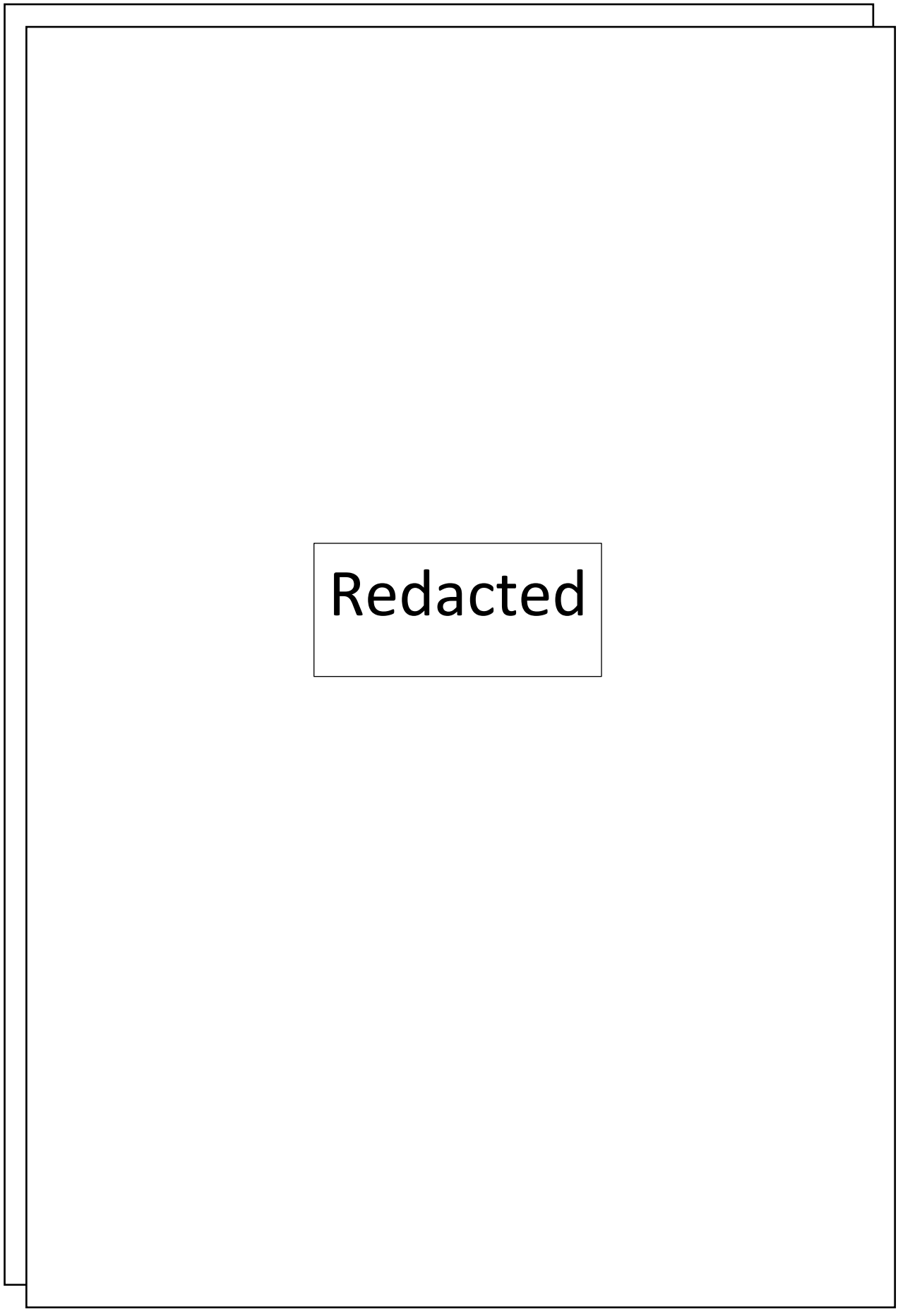
Redacted

Redacted

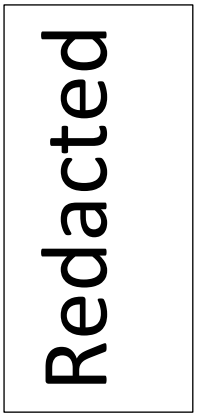
Scientific name	context	[illegible]	[illegible]

Redacted

Redacted


Redacted

Redacted

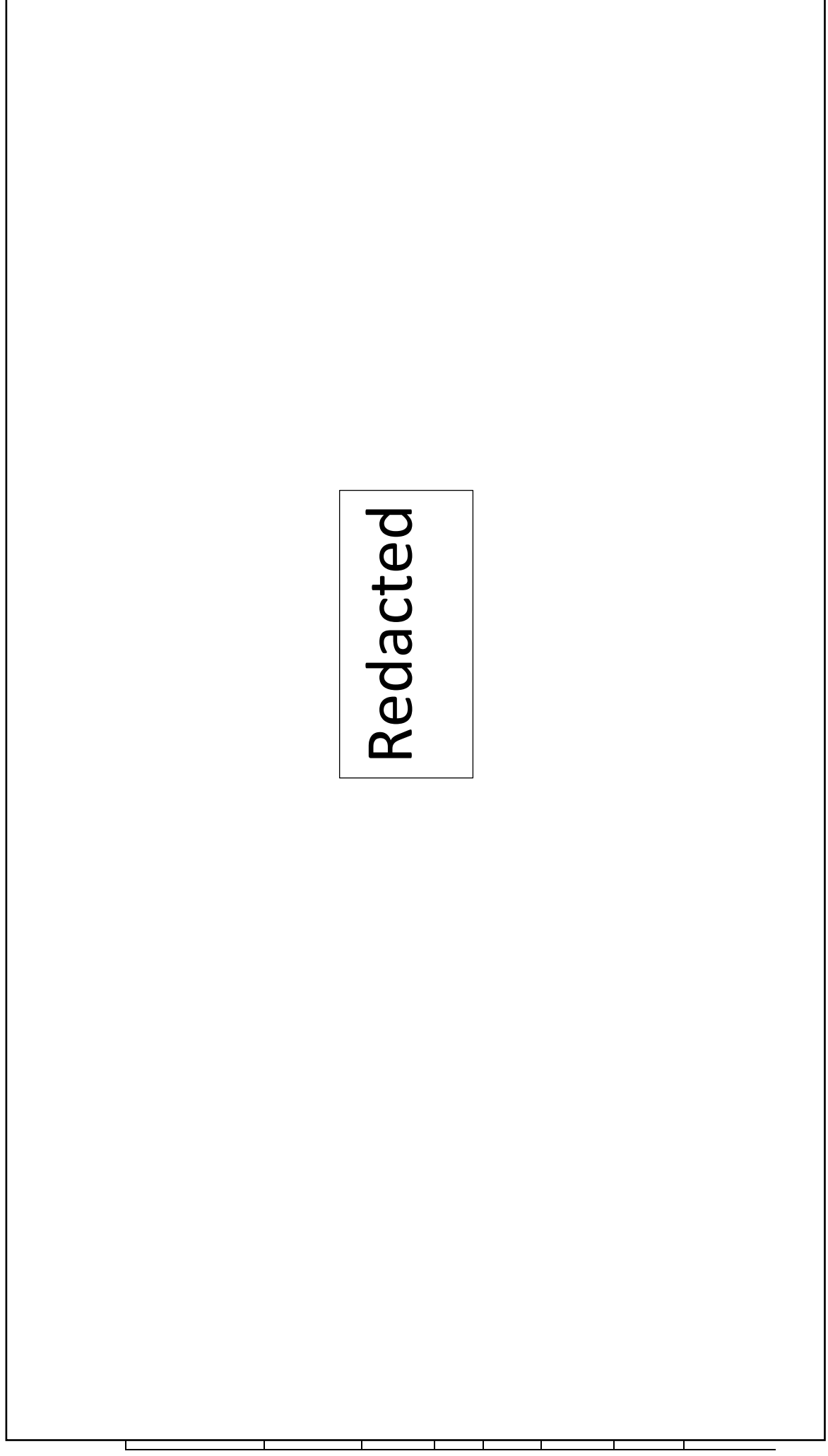

Redacted

Redacted


Redacted

Redacted

Redacted


Redacted

Redacted

Redacted