

Supplementary Material

Appendix 1 - References with local content and information about climate (temperature and precipitation) of the study region and water level of the Saale River.

Local climate data:

- Döring J (2004). Zu den Klimaverhältnissen im östlichen Harzvorland [About climate conditions in eastern foreland of Harz Mountains]. *Hercynia* NF 37: 137-154. [in German]
- Internationale Kommission zum Schutz der Elbe [International commission for the protection of the Elbe River] (2014) Hydrologische Auswertung des Hochwassers vom Juni 2013 im Einzugsgebiet der Elbe [Hydrological analysis of the flood of June 2013 in the catchment area of Elbe River]. Magdeburg, Germany, pp. 25-30. [in German]

Water levels of the Saale River:

- Anonymous (1950-1953). Deutsches Gewässerkundliches Jahrbuch für das Gebiet der Deutschen Demokratischen Republik [German Hydrology Yearbook of the German Democratic Republic]. Forschungsanstalt für Schifffahrt, Gewässer- und Bodenkunde in Berlin. Berlin 1950-1953, Abflussjahr 1945 (1953), 1946 (1950), Germany. Page numbers not available. [in German]
- Anonymous (1952-1954). Deutsches Gewässerkundliches Jahrbuch für das Gebiet der Deutschen Demokratischen Republik [German Hydrology Yearbook of the German Democratic Republic]. Meteorologischer und Hydrologischer Dienst der Deutschen Demokratischen Republik. Hauptamt für Hydrologie in Berlin. Berlin 1952-1954, Abflussjahr 1947 (1952), 1948 (1953), 1949 (1954), 1950 (1954), 1951 (1953), 1952 (1954), Germany. Page numbers not available. [in German]
- Anonymous (1956-1963). Deutsches Gewässerkundliches Jahrbuch. Elbegebiet [German Hydrology Yearbook of Elbe River]. Meteorologischer und Hydrologischer Dienst der Deutschen Demokratischen Republik. Berlin 1956-1963, Abflussjahr 1953 (1956)–1959 (1963), Germany. Page numbers not available. [in German]
- Zinke G (2011). Die historische Entwicklung der hydrographischen Bedingungen in der Stadtregion Halle unter besonderer Berücksichtigung der Hochwasserverhältnisse [The historical development of hydrographic conditions in the city of Halle with taking in to consideration flood events]. In: “Halle und die Saale – Verflechtungen der 1200-jährigen Stadt mit ihrem Umland durch Wasserwirtschaft und Bergbau sowie Folgeindustrien“ [Halle and the Saale River – the complexity of the 1200 years old city with urban hinterland by water economy, coal mining and industry] (Ohlig O). Schriften der Deutschen Wasserhistorischen Gesellschaft. Band 15. Siegburg, Germany, pp. 161-194.

Local nature conservation:

- Klämt G (2009). Landschaftsökologie am Beispiel des Biosphärenreservatausschnittes Mittlere Elbe zwischen den Zuflüssen von Mulde und Saale [Landscape ecology, using the example of biosphere reserve of medial reach of Elbe River between the influents of the Mulde and Saale River]. GRIN Verlag, München, Germany, pp. 21. [in German]
- Müller J, Reichhoff L, Röper C, Schönbrodt R (1997). Die Naturschutzgebiete Sachsen-Anhalts. [Nature protection areas of Saxony-Anhalt]. Landesamt für Umweltschutz Sachsen Anhalt, Gustav Fischer Verlag, Jena, Stuttgart, Lübeck, Ulm, Germany, pp. 302-303, 334-335. [in German]

Habitat characteristics of study species:

- Schütt P, Weisgerber H, Schuck HJ, Lang KJ, Stimm B, Roloff A (2006). Enzyklopädie der Laubbäume [Encyclopaedia of deciduous trees]. Nikol -Verlagsgesellschaft mbH & Co. KG, Hamburg, Germany, pp. 642. [in German]

Fig. S1 - (a) Mean maximum water level of the Saale River in the area of Halle, (b) mean monthly temperature, and (c) mean monthly precipitation sum for the years 1946 to 2016. Vertical bars indicate intra-annual variation expressed by standard deviations. Note that climate values from 1981 to 1983 were not available due to the closure of the meteorological station. Consequently, also water levels of these years were not used in this study.

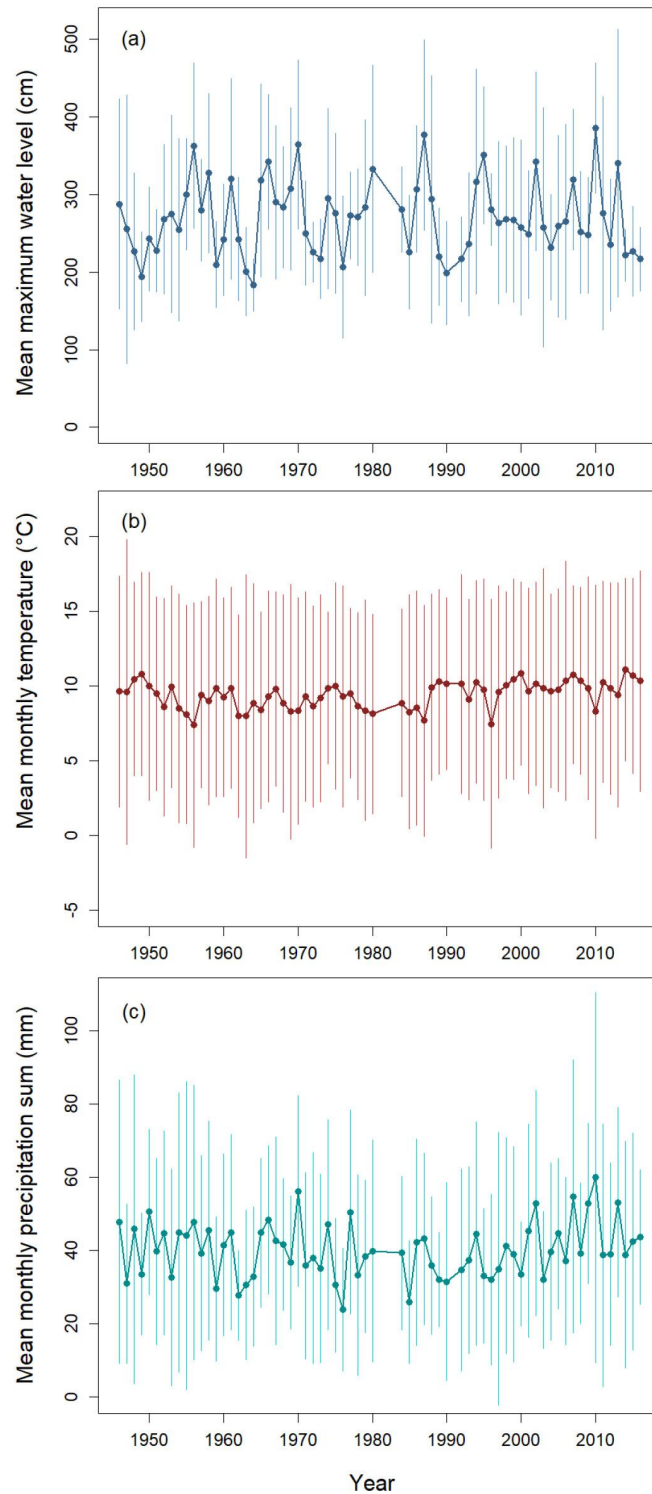
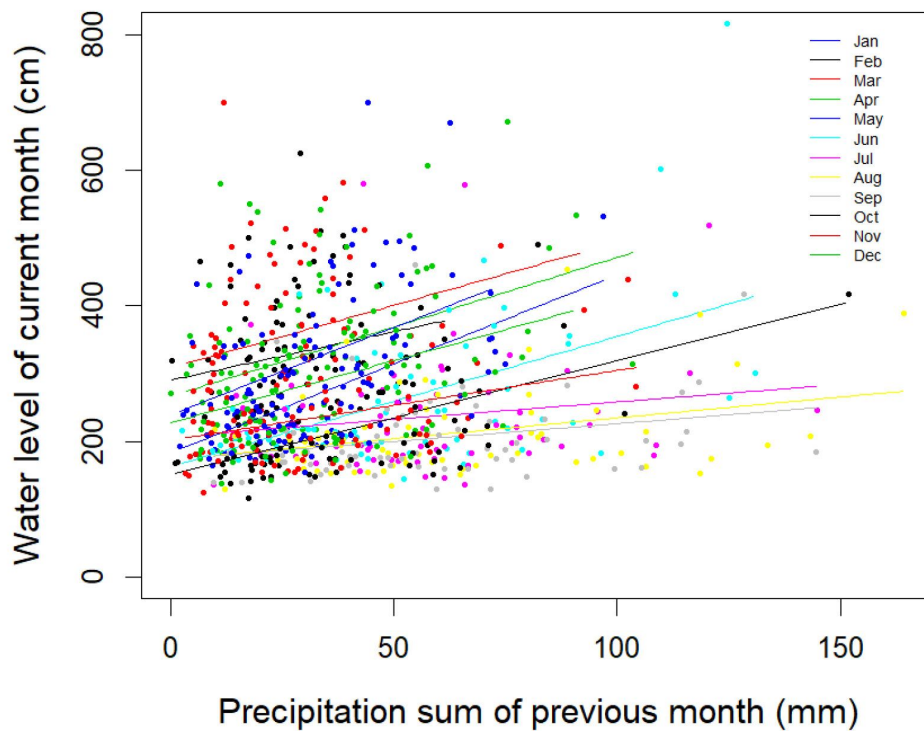


Fig. S2 - Correlations between the monthly maximum water level of the Saale River in the area of Halle and the precipitation sum of each previous month in the time period from 1946 to 2016. The legend refers to the month of the respective water level. Correlations were calculated with simple linear regression models, and in all cases except for February and July the maximum water level was significantly correlated with the amount of precipitation in the previous month.



Water level	Precipitation	F	p
Jan	Dec-1	12.19	<0.001
Feb	Jan	1.69	0.198
Mar	Feb	4.91	0.030
Apr	Mar	10.24	0.002
May	Apr	34.67	<0.001
Jun	May	20.93	<0.001
Jul	Jun	1.52	0.222
Aug	Jul	7.38	0.008
Sep	Aug	4.31	0.042
Oct	Sep	26.40	<0.001
Nov	Oct	5.33	0.024
Dec	Nov	9.88	0.003