

W08-1 Non-linear prediction

This worksheet revisits the regression and prediction topic but this time from a non-linear point of view. After completing this worksheet you should know how to use local regression models for fitting relationships within your data sets.

Things you need for this worksheet

- R — the interpreter can be installed on any operation system. For Linux, you should use the r-cran packages supplied for your Linux distribution. If you use Ubuntu, [this](#) is one of many starting points. If you use windows, you could install R from the official [CRAN](#) web page.
- R Studio — we recommend to use R Studio for (interactive) programming with R. You can download R Studio from the official [web page](#).
- your script and data from [W02-1: Reading CSV files](#)

Learning log assignments

! First things first: the following analysis is build on top of your script from [W02-1](#). Please copy your script “W02-1.R”, rename the copy to “W08-1.R” and use it for the programming tasks of this worksheet.

😞 Please visualize once again the relation between animal activity and coverage.

😞 Perhaps there are models that fit better than the linear regression! Let's try a polynomial regression using the loess() function. Add the prediction of the loess model in our scatterplot using the lines() function which works almost identical to regLine().

😞 Now let's check out how the loess model compares to the linear regression when it comes to predictions. Please compute a leave-one-out validation as in [W06-1](#) but this time use the loess model. How do the error statistics compare to the linear prediction model?

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