Rahel’s comments, Chapter 9

249, P005:

In previous chapters we considered various models of *encounter probability*, both

in terms of parametric functions of distance and in terms of covariate models

(Chapter 7 and elsewhere).

the Bernoulli observation model, which, in secr (Efford, 2011a) [REF when first mentioned]

‘individual’ without dash

249, p0010:

Delete sentence: ‘We present models when the data are encounter

*frequencies*, based on the Poisson distribution, and observation models based on the

multinomial distribution.’ [is repeated in the next few lines]

add comma: ‘…, which is a physical device..’

Bottom of the page: Add a reference to Beth’s and Earvin’s and Brian Reich’s stuff for single-catch traps?

250, p0015:

‘… because distinct visits to sampled locations or devices within a sampling occasion cannot…’

250, p0020:

Remove commas: ‘… for individual *i* in trap *j*…’

‘…depends on both individual and trap (we could, of course, also make lambda time-dependent). ’

Bottom half of this page – I guess no subscripts on x and s is ok, as per your recent email.

For the equations, should we remind the reader what d(x,s) is? Hasn’t come up in this chapter yet.

250, p0025.

‘… at the level of the individual, trap, or sampling occasion….’ [no dashes after individual and so forth]

251, top paragraph:

‘… general covariate models, because the same principles we cover in some detail in both Chapter 7 and 8 apply here.’

251, p0030:

Is k(x,s) a wise choice since we use k as an index of occasion in the very same equation? Maybe g(x,s) instead? Would have to be fixed throughout the chapter.

‘… obtained so that effective parameter estimation is possible.’

251, very last line: add comma after equation (I think)

252, p0040:

‘… as the encounter probability model, which…’

252, p0050:

‘… vs. distance, and superimposed on that…’

Figure 9.1: ‘Poisson approximation to the binomial model.’; maybe ‘… by a Bernoulli model with parameter p=lambda’

253, first sentence (starts on prev. page): maybe delete because the same content comes up again in following paragraph

‘… you can execute the following R commands, which we use…’

253, p0055:

‘To summarize, if y is Poisson, then, as lambda gets small,…’

253, p0060:

‘This is equivalent to the complementary log-log link model from Chapter 5’ [has been defined as the hazard model on previous page]

254, p0065

‘… negative binomial models for count data because it accommodates overdispersion…’

‘… to the linear predictor of lambda…’

254, p0070:

‘As a general rule, we…’

‘Similarly, in scat surveys…’

‘… provides no information…’

Does section 9.1.3 need a concluding sentence?

254, p0080:

Remove dash after ‘individual’

Does the ‘=’ in the equation have to be a twiddle?

See comment above about double use of letter k in these equations

255, p0085:

Change ‘Bern’ to ‘Bernoulli’

‘…likelihood methods, which we neglect here…’ – but secr is used in Sec. 9.1.7

255, p0090:

‘… we modify the block of code that defines …’

255, p0095:

‘…frequencies for each trap, and we use this new code to generate, and subsequently analyze, an ideal data set…’

256, first line

‘The Poisson simulator…’

‘…simulating a data set, harvesting…’

Font size of code blocks differs

256, p0100:

Change ‘setup’ to ‘set up’

‘Here it all is…’ – sounds awkward?

‘…commands are also shown in the help file…’

257, p0110:

‘… using JAGS via rjags…’ either delete ‘via rjags’, or add reference for rjags and add above that we use WinBUGS through R2WinBUGS (with REF also)

Does this section need some comment on the estimates from the analysis?

258, table 9.1: Change ‘Poisson encounter frequency’ to ‘Poisson observation model’?; add commas into the 4 or more digit numbers (e.g., 6,000); make Rhats 1.00; center columns

258, p0120:

‘The R package secr can fit…’

‘… when the traps object is created’ – ‘traps’ in tt?

258, p0130:

‘Also, some kinds …, as do pit-fall traps, which….’

259, top paragraph:

Change ‘of, for example, reptiles’ to ‘for example, of reptiles’; in following line delete ‘(turtles, lizards)’

‘A situation in which… violated arises under the “single-catch” systems, which we address in Section 20.1.5.’

259, p0135:

‘… a multinomial observation that…’

259, p0140:

‘…multinomial cell probabilities for each individual as a function….’

‘Thus, we suppose…’

In equations, use π(x,si) (before we use k(x,s))?

260, first line:

‘…,J, and for J + 1…’

Add a comma after second mlogit equation.

260, p0150:

‘Using our example with 6 traps …’

Comma after ‘possible outcomes (1,2,3,4,5,6,7)’

‘… although it is convenient to use the categorical formulation.’

261, p0165:

‘… function, which is implemented in the function…’

261, p0170:

‘The matrix Ycat here has N rows and to do an…’

‘… includes a behavioral response, which…’

261, p0175:

JAGS bold font, not tt; also, comma after JAGS

Change ‘setup’ to ‘set up’

Comma after ‘In addition’

‘… variable z’ – should z be bold?

Starting values – first you say you use the true values, then in the next sentence, that you use the average capture location – which?

262, p0180:

‘In the last line of code …’

262, p0185:

Change ‘inits’ to ‘initial values’

‘(these commands are shown in the help file…)’

Change ‘individuals per meter-squared’ to ‘… per m2’

264, top paragraph after Eq. 9.2.2

‘… where we note that the intercept…’

264, p0205:

Add Latin name of ovenbirds (Seiurus aurocapilla)

‘… adult ovenbirds caught during sampling in each of the 5 years.’

265, top paragraph:

Add comma after ‘Therefore’

265, p0210:

‘… for such replication by groups of time and space…’ ‘in’ instead of ‘of’?

‘… we model these processes explicitly, but here, we provide…’ [I think comma should be moved to before ‘but’]

‘…ovenbird data set here using the multi-session models with a multinomial observation model in secr.’

266, p0230:

‘… object ovenCH, which, by regarding years as independent strata or sessions, allows…’

266, p0235:

I’d add a reference to Panel 9.2 early on in this paragraph.

‘We have an R script in the scrbook package…, so you can see how to set up…’

‘… considerable variability in density over the 5-year period, with…’

‘The R-hat’s…’ – change to R-hat (actual symbol of R with a hat) statistics?

Also, all R-hats are well below 1.01 and in other places we say that’s satisfactory.

268, Table 9.2

Add commas to 4+ digit numbers (e.g., 11,000)

270, p0270:

‘…physical trap that captures…’ [I learned recently that the ‘restrictive which’ as you used it here originally is not wrong, but uncommon; I learned it was wrong so I am correcting it… it’s my German ‘systematic’ nature, sorry…]

271, p0275:

‘… Bayesian analysis of this model, and…’

271, p0280:

‘…but with the trap that captured the first individual…’

In the following equation you use \* to indicate multiplication – remove?

272, p0295:

Add comma after ‘Originally’

I’d remove the new paragraph they start after the quote about the possums (not remove the text, just have it be one paragraph instead of two.

272, p0305:

‘the use of multi-session models, which we used…’

‘…single trapping grid (with 180 traps), which is …’

273, first line:

‘(refs, refs), which we also…’

273, p0315:

‘…and discarded”, which…’ [I think in this case you need the comma after the quote… or maybe inside… but not a full stop in the “”, I don’t think…]

‘If multiple same-session captures…’

274, Table 9.3:

Add commas to 4+ digit numbers

274, p0320:

‘… a rectangular state-space, which…’

‘…of the ovenbird analysis given previously, so…’

274, final block of 4 lines:

Sentence beginning with ‘But even among likelihood…’ seems a little out of place.

275, top 2 lines:

Add commas around ‘too’ – both before and after.

275, p0335:

‘… promising technology area…’ – ‘promising area of technology’?

‘… and it was applied to field study of…’ – either plural or ‘a field study’

‘… with an array of 5 x 15 such clusters.’

There seems to be something missing from the last sentence of that paragraph.

275, p0340:

‘… with d from the original sound to the…’

276

Here’s a comment I wrote late in the evening, on the plane, so I may not have been in the soundest state of mind to comprehend the acoustic sampling stuff:

‘Honestly, this stuff isn’t really clear to me. Are there repeated occasions? If so, how do you ID calls across occasions? Confused + tired.’ In hindsight, some of that comes up later in the chapter, but I feel like these things should be explained early on. Would only need one sentence or two to do so – is sampling repeated, is the same individual identified repeatedly.

276, p0350:

‘… because the recorded sound is…’

‘… an individual is detected if S>c, which…’

‘The encounter probability is Ps(S>c), which…’’

Here’s another late evening plane comment: ‘…so that, if we standardize the variate, we have…’ – wha?

‘… and the individual location u and trap location…’ – maybe use ‘detector’ instead of trap

‘… including R, which has a standard function…’

‘… we’ll use Phi() to represent…’

‘…whenever S>c, which happens…’

Comma after ‘Naturally’

‘… what we call its instantaneous location, u, …’

277, first few lines

Delete ‘the quantity’ before gamma

In the equation, not sure we’ve introduced the dot notation, and certainly not in this chapter (gamma(.)).

277, p0360:

‘… environmental factors, which…’

‘…wind direction and speed…’

‘The bottom line is that a lot of factors…’

277, p0370:

In the following equations you use p and S with subscript u – is that supposed to mean conditional on u? We have expressed that with parentheses before. Or something else?

Add ‘.’ after equation that begins with ‘1-pu’

Start following line with ‘Therefore’ (i.e., delete the ‘and’); add a comma after next equation.

‘… the binomial-form…’ – no dash

278, p0375:

‘with examples (ref) that come…’

278, p0380:

I’d add into this paragraph that repeated surveys require you to ID individuals across occasions, or is that not right?

‘This general model is an example of an SCR…’

‘…movement model are identifiable separately from the detection model (see Section 2.6)…’

279, p0390:

Add comma after ‘Normally’

‘… (or at least a direction) and recording a time of detection.’

279, p0395:

‘… that can record multiple encounters per occasion of the same individual…’

279, footnote: Add ‘Oslo, Norway’

280, Table 9.4: ‘… where we discuss them…’

280, first paragraph, first line:

After dash, start with lower-case s

Abstract, line 2:

‘…of distance and also a myriad of…’