Adrian: Search rate to be dependent on the predator body size and the handling time to be dependent on the predator and the prey body size, or something like that. More recently that has evolved to seemingly more general relationships when you compare across taxa. That predict this nonlinearity between handling time and attack rate with the ratio.

Me: long diatribe about how in depth to go into the functional response in the first paragraph. And how the mechanisms that we present can be density-dependent or independent

Adrian: I think this correlation between biomass and density is maybe a discussion point or something (*I don’t understand what you mean by this*). I don’t think that has to go into the introduction. I think you want to stay use broad general language and bring the reader along to the degree that you can. So doing a deep dive into the functional response isn’t particularly effective right off the bat. I would stick to talking about search time and the amount of time it takes for a predator to consume and digest a prey. And I think that you can say that a lot of the literature – predators can play a crucial role in regulating prey populations which can effect ecosystem function, or population dynamics, whatever you want to say. I’m not sure if you need to say this interaction strength thing next. I think I would just say that the effects of predators can vary from system to system. Just like predators are important in some places and not others. So that’s like effect size sure, but its also just other stuff. For example, the effects of predators can vary as their diets change through time, or as prey is intermittently available from recruitment, or based on habitat characteristics.

Me: So you would say this before I even mention the functional response?

Adrian: Ya, keep it simple. Predators can be important, but they aren’t always important in the same way. Their effects vary. For example, recruitment, ontogeny, habitat. And then what’s missing here is a who cares statement. I mean ya, lots of ecological processes vary, and I think your job is to say why we should care about that. So why do you think variation in the effect of predators matters?

Me: gasping for an answer

Adrian: For me, I often come back to two different reasons for how cares? One of them is its our job as ecologists to explore the unknown. So it’s not just we didn’t known that know we need to know. Its more like, we need to predict the context-dependency of different ecological processes of biological systems, is an important goal for ecologists. Ecology is complicated and we are trying to figure out when and where different processes are important. I’m not saying you should say all this, I’m just trying to contextualize. There has been this evolution is ecology where like the interaction between predation and competition, the interaction between nutrients and predation, the interaction between disturbance and competitive dynamics, all this like this work until this other thing comes into play. And it lead to this whole evolution of, “well if everything is context dependent, who cares? Community ecology is dead. There is this whole lorauea (SP, author name).” And so the answer I think to that is, well ya its complicated but we can figure out how it works enough to provide some insight into when and where predators might be important. That seems like a relevant goal, acknowledging that context dependency is part of that. But then also seeking some predictive capacity for understanding when and where specific ecological processes are important. The other aspect that comes to mind, is management. To also understand how changes… how the disproportionate effects of humans on the size, density, and spatial distribution of predators are likely to alter the ecology of systems. Or the role of specific key players. I find that much more compelling that trying to predict stuff that’s really hard. I think you kind of want a hat tip to your graphs through time and stuff. So predators are important, their effects vary, for example ontogeny, recruitment, and habitat. Understanding when and where predators are important offers insight into predicting the role of a key ecological process, and also insight into how human altered changes in body size and density of key players is likely to cascade through ecological systems.

Me: would you go into body size at all in this first paragraph?

Adrian: not really sure… I think you could say recruitment, ontogeny, habitat, body size. And then not go into the details of why it varies with body size. And just say that it varies as a function of a lot of stuff. And then you zoom into the body size effects. You know, “here we focus on the role of predator body size in altering, the role predators play. This subject has a rich history in ecology from early studies such as Yodzis which pointed to the importance of predator body size in affecting attack rate, or search time, and prey body size effecting the rate at which prey is consumed and digested. This is rooted in metabolic theory. This field has evolved in a variety of ways. In particular people seeking these you know universal scaling relationships that seem to deviate from metabolic theory but be consistent across taxa, or something like that. This is promising for understanding for increasing predictive capacity for when and where predators are important.

Me: How do I talk about metabolic theory without introducing the functional response?

Adrian: I don’t think you have to. You can say that metabolic theory predicts a universal scaling relationship for all organisms between rates, such as searching or digesting, and the size of a predator. Its become apparent since then that incorporating in prey body size is also an important predictor for estimating consumption rates.

Me: So you wouldn’t go into the details of the expectations based on MTE? Then I went into the fact that one of our results is the lack of scaling with attack rates, and how do we talk about that when we don’t discuss it in the introduction. (16:27.95)

Adrian: I think that you don’t have to talk about functional responses or the predictions of metabolic theory in the second paragraph. I think that’s maybe in the third paragraph. This you want to set it up generally first, then you can get into some detail. But given the structure you have here I don’t think you necessarily have to talk about functional response details at all, except to say that the effects of predators on prey depends on prey density as well as other stuff. So the effects of predators can vary across space depending on how many individuals are there, body size, habitat, and all that other stuff. I feel like this paragraph is about, so your like who cares well because were trying to predict when and where things happen and you know people are affecting stuff and we want to know when and where that matters. Here we focus on how variation in body size can effect predators. Historically we thought about that from Yodzis based on the search time being predator dependent, because of bigger predators being faster or something like that. Handling time being prey size dependent because you can eat smaller things faster. More recently studies suggest that handling time and search time are hump shaped with the ratio of body size to predator size. And that is consistent across taxa which is promising for prediction for thinking about how changes in body size might alter the role predators play in the landscape. That’s like the last sentence. Does that make sense to you? You don’t have to go into all the details yet. I think the question is what’s next?

I think your right to have this can predators know down prey stuff in here (*referring to third paragraph, I believe*). Regulating is a charged word, but you know, limit?, regulation has a very specific definition: prey growing without bound. I think here we’re gonna talk about overgrazing, and predators might “temper” overpopulations of urchins. We can work on that later….

Me: I was trying to write why we care of incorporating body size…

Adrian: I think the general advice that I’m giving you here, is that you offer too much detail and not enough stringing general thoughts together at first. So its like the effects vary, for example this stuff, that matters for these reasons, here we’re focusing on body size, historically we’ve thought about effects varying this way. More recently, they vary this way. And this really matters for the way that we think about predators tempering prey populations because it seems that predators can transition for feeding one way where they can’t keep prey from growing without control to another way which they can keep prey from growing with control. Just based on the size ratio. And I also feel like this point here, over to paragraph two. I wonder if that is a better set up for why like… its not just… Here we’re gonna focus on body size. But here we focus on body size which varies tremendously across space and time. Or like here, we focus on body size. Our interest in body size is derived from the fact that its been shown to be important in other studies but also that its among the most prominently clear features that is present in predator prey systems, where you have differences in overlap of predator and prey body size.

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Me: if you had to identify in one sentence the gap that I was trying to identify by the end of paragraph 3, what would it be for you?

Adrian: We don’t know about whether these general relationships that are estimated across taxa apply for any given single taxa. And that we should be able to take these general relationship from Kalinkat and apply them to a given system, and then predict when and where predator prey interactions should be strongest. And what you’re going to do try and test that and compare the predictions from that model to what we actually found. And show that there is a difference and that there is still more work to be done there.