

13 June

Historical population trends and abundance estimates

100 pts to be arranged among 4 options, # of points to represent strength of belief

51 for much lower than PIF
329 for lower half of PIF
490 for upper half of PIF
130 for much more than PIF

Reactions:

Jason - surprised about weight on high end

Ken - surprised in the other direction because everyone always criticizing BBS for missing birds. He's surprised most of the group is relatively happy with the BBS
general clarification of reading of chart

Brett - sampling scheme seems likely to underrepresent birds

Mark - +/-50% seems like a good representation of accuracy, and bias seems to be an undercount

discussion of Atlas estimate

Ken - common perception that roadside survey HAS to be underestimating interior bird. He doesn't think so. Ceruleans common along roads and BBS routes designed to go through secondary landscapes (rural/wooded). In the east there's little that can be considered "off road."

Randy - don't disagree, but still have issues with detectability - just aren't detecting all the individuals at a stop - probably bias there. Also think about how BBS surveys represent habitats. If ceruleans are clumped or don't occupy all suitable habitat, might bias numbers one way or another - not sure which way ...

Pat - BBS inherently biased low - route allocation, detectability - in Cumberlands, most routes run along creeks, most birds are on ridgetops

Paul - the one thing that causes most concern - the detection distance used by PiF (120 m). It is possible to hear them out that far is you're listening for them, but the average BBS listener isn't necessarily listening for them. Maybe use 100 m, which would make a 2-fold difference. Petra Wood sampled onroad and offroad points and found no difference. Roads that are used are more likely to be changed in characteristics that affect hearing (roads cause such changes) and a few cars going by at the wrong time will affect counts ...

Wayne - probably an underestimate - before I came, I thought maybe an uncounted floater population, but I hear that may not be an issue - grab territories - plenty of habitat, not so many birds, so maybe floater isn't an issue. But I do think that Pat's recognition re route allocation, Dave would suggest he has a hole that isn't well sampled by BBS, routes in Appal that exist but haven't been run regularly, so Appal

could be better surveyed to get tighter estimates, at least for core of spp. So I don't feel confident about to what extent it's an underestimate, but could be considerably.

Dave - what can the observers hear - on any day, some fraction of the birds are singing, which tends to lead to overestimation. assumption that for every male you have a female, which definitely isn't true, which leads to opposite effect - how big that unpaired male pop is we need to know more. Distance aspect and nonsinging bird need more work. We independently estimate (habitat models, plot densities) in Cumberland Mtns TN, and get consistent results with PiF. So feels there are inherent biases, and those balance to the low side, reality higher, but in the ballpark.

Jason - detectability - back to distance estimate - degradation of sonographic signals. At about 80 yards, song doesn't look like it does at 5. Probably could hear out to 120 yards if you know what you're listening for. Our males shut up once the females are incubating - maybe one or two songs at dawn chorus. If we did 2 pt cts separated by a 1 wk period, had a 99% confidence of detecting indivs. In terms of floaters, had no floaters in study pop that are singing, altho in periphery always 1-2 males (less than 2%) that appears to be unmated, but higher prop that is bigamous, so may come out in wash, somewhat.

Mark - re Dave's remark - routes are adequately sampling habitat - can do stats to look at this?

Wayne - some work, but unfunded, at national level with Eros

Ken - this has been a strong recommendation to BBS to understand sampling relative to habitat

Ken - back to distance of detectability - critical parameter - something he pays lots of attention to, PiF trying to collect some data ... Lots of times when you're hearing birds out across fields at much greater distances than you think you could hear them in forest - not always hearing them through forest - averaging across landscapes where you hear across valleys, over fields - so it's a weird average maximum distance - it's not that we think you can hear every bird out to 120 m. And in different parts of the birds range - where the bird is more rare, where you would expect we're missing birds, this method greatly overestimates in those jurisdictional units. Estimate was low in core, but high on edges. don't know why. not just cerw

Wayne - could be regression to the mean - lowering estimate in core and raising it at edges

...

Brett - my concern isn't a detection issue but if we're reaching all the proper habitat

Pat - total routes for Cumberland is wretchedly low, probably for Ohio hills, too

Brett - I assume there's a correction for that

Ken - no, they're randomly allocated

discussion of how routes are used to develop estimates Wayne and Brett

Wayne - definitely issue in interior Appal - if there's a spike of birds in the center and areas around don't have any, and no sampling in spike, won't be represented

Steve - what about observer bias? there's a correction for new observers - are there issues there that may be biasing?

Ken - I wouldn't think particularly for cerw. Theoretically all trained, all know the birds in their region, cerw is a pretty easy song, so nothing systematic across range.

Dave - non issue.

Scores on trend estimate for 1966-2005 (3 categories) - all right down the middle within the BBS ci. one indiv has 50 in middle, 50 higher decline. three leaned toward more decline, 2 leaned towards less decline, one by 50%. 50% is lowest middle score, 95 is highest

Steve - that's a pretty strong signal in my experience

Ken - make sure John sees this

Jean - there is some tilting one way and another

Steve - there is info in the tails

Ken - finds pattern appropriate

Maria Isabel - I put the 50 (in the high category) because I think the breeding survey has to control all that happens in breeding ground, but have to think about wintering ground, and could get worse (she was extending into the future)

Jason - slight incongruity jumped out at me - we had tacit understanding that the BBS is underestimating pop, maybe considerably. If we think that, does that not make our thought that the decline is this severe odd?

Ken - only if by underestimating by 50% we're missing whole chunks of the range where it could be doing something different

Jason - if the missing birds are in isolated areas that we aren't surveying, that could make a trend difference. I think we need to reconsider confidence interval ...

Wayne - the other half is mixed in amongst the half that you are sampling

Jason - in Ontario have two study sites a mile apart with radically different productivity.

Wayne - but you're assuming all the routes are sampling in a biased way - sampling only declining

Pat - I think there may be a weak bias, but you'd have to assume a consistent bias to get to where Jason is thinking

Ken - depends on whether the unsampled 50% are mixed or in completely different places. I don't think anyone thinks we're not sampling 50% of the population geographically (sounds of agreement)

Jason - I just don't think you need a bit geographic separation to get a big difference in productivity

Pat - 1966-1972 there was a much smaller sample size particularly in this area (Cumb Plat) that is number-challenged, so have little confidence in trend for region and currently showing a high rate of decline due to early data.

Dave - still on average 3% in that area - first 10 years might be 5%, but now in range of general pop.

Ken - if you think something different on roads than on ridges, would expect a whole bunch of birds to show the effects, but many forest birds are not declining. makes me more confident that cerw pattern is real

Steve - to Paul - why such high confidence in BBS trend

Paul - because BBS has been so responsive to criticism and has tried to accommodate most criticism.

Pat - it's been so consistent for so long, hard to believe it's not real, and while local samples may be small, range-wide, sampling is good.

Wayne - agree with Pat - rangewide and core same signal, edge of range similar signal - makes sense given biology of bird and movements and redistribution, methodologies have been vetted continuously and consistently - understand weaknesses and have tried to account for them, have robustness from different methods reaching the same conclusions

Jason - if we're missing 50% of birds, that has to add some level of uncertainty to trend

Randy - suggesting estimate might be missing 50% - # of birds actually counted is miniscule. 2.5 birds per route in WV - how does that affect our level of confidence.

Brett - looks too smooth

discussion of smoothing - Brett is happier

Dave - wrt how smooth the trend is just tells me lots of offsetting factors rangewide - some localities going up, some down, smooths bumps out of pop trend.

Mark - comment we underestimating #s affecting trends - need to think of them as two independent estimates

Jason - I should narrow my concern. For the birds BBS is sampling, I think trend is fine. Is the BBS sample representative - I have less confidence in that.

Pat - there's an unsampled segment of the population but I don't think there's likely to be a bias

Wayne - unsampled part of pop is largely female - you'd have to think sex ratio is being skewed ...

Ken - unsampled is not females - that's taken care of in doubling factors - would only be an issue if we have whole unsampled portion of the range

Brett - I assume the experts are right

Ken - I think one reason there's strong agreement because lots of people in this room are lifelong bird people and over time BBS has agreed with what we're seeing in the field

Dave - no reason to believe strong systematic bias in trend, for all the things we've talked about

Paul - what the BBS is measuring is males, and we assume what's going on with males is going on with females, and we have no way to know that.

Rescore on historical abundance

20/255/550/165 lower than PiF, lower half, upper half, higher

Rescore on Trend

108/710/182 - less decline than BBS, within BBS ci, more decline

one panelist has 80% more decline than BBS, others are 60-95% within BBS

Question: is there evidence that CERW range has changed (areas lost or added) since 1966? (Sauer map show incr decl 1996-2001 - judged misleading because superposed on BCR units)

Ken - eastward expansion since 1950

Dave - pocket of birds in AR not necessarily well understood - river censuses with Atlas work found a bunch - not a humungous number of birds, but a good number

Jean - was that an expansion, or a discovery?

Dave - probably not an expansion

Jason - Ontario - first nest in 1952, that population has winked almost to 0 in 15 years, whereas ours in NE Ontario likely increased over the 1970s - our population is maybe 40 years old. Growing small populations in w Quebec.

Brett - anywhere in range they're relatively stable?

Jean - handout from yesterday by state and time frame

Dave - blue blob in WV is not an increase in pop - is a sampling artifact according to John

Pat - increasing trend with whopping variance due to small sample size

Jean - more info on areas added - on expansion of range

Ken - very well documented beginning in 1950 in New Jersey and into NE in 1960s and 1970s while moving up Hudson and into Canada from 2 directions from historically in sw Ontario as in W NY but everything east of Appal is documented as expanding. NJ pops are now fairly large. Expansion over a couple of decades, don't think they are continuing to expand, and are blinking out of areas they moved into during that period. (state by state section of Paul's status assessment)

Steve - anyone think these aren't expansions?

Jason - may be reexpansions - may have been there once, but no forest cover for a long time

Dave - anyone know if there was a similar expansion in the Lake States in the same period - a climate-based thing Nward, not just NEward?

Wayne - if precip is a constraint, that may funnel NEward

Ken - earliest records record them in Minn and Wisc where they are today

Steve - places they're missing now?

Pat - yes in Miss in Vicksburg area were pops into the 1960s don't think they were very high, but not there now. Immed along the Miss River in LMAV - pops there now were there before but losing ground, may be losing some in n. BBS probably never can get a cerw in that area because roads in forests "are not the same." maybe with WRP might get wetland forest near a BBS route eventually

Jason - lots of woodlots in Ontario that had birds once that don't now, but how many birds that constitutes - couple dozen

Randy - s IL

Jason - from Scott Robinson - dwindling in Shawnee. Wendy's sites are empty now.

Ken - in atlas sites, in 90s were sampling, all the dots should be on the map. I hadn't heard they were disappearing

Jason - both Lisa and Kate sampled as Palisades st pk and surprised how few birds in some sites - not gone, but fewer

Ken - our intention when we did this, and like to pursue this - is to get a baseline for whether, outside the core of the range, sites are blinking on or off

Randy - what about NC birds in coastal plain - always there?

Ken/Dave - Roanoke River - discovered in 1970s, jury's out on whether they're new or not

Wayne - fair characterization that pop seems to have moved somewhat Nward and western and s part has lagged behind. declining ...

Dave = don't think of it as being the case that s edge is moving up. Along Miss there are issues, but to me, southern edge fairly stable when look at river systems in AR.

Ken - went out and found healthier than expected pop in Ala, right at edge, and Ozark birds are doing well.

Steve - turning to nonbreeding part of range, what do we know?

Paul - 2 things going on. 1 is that in past less access, so now with more access during period of BBS more points added, but doesn't mean anything except incr access due to logging roads punching access into foresets

Ken - but question about records from Peru and people don't think they're there. Maybe specimens from Peru were all from Miss Valley (leapfrog migration) - we're talking 50% reduction in winter range if that's true. My gut is they're probably still there all through that zone but we haven't figured out where

Paul - conceivable, but people there don't think so.

Paul - through El Grupo, dozen surveys with volunteers- 2 in Venez, 3 in Col, 3 last year in Ec, 1 in Peru, 1 in Bolivia over 2 years.

Ken - but they've found them? then they have to be all through the region - that's how S Am works - if you find 1 bird ...

Dave - Maria Isabel - is there a model of habitat?

M-I - yes. - green areas on map are modelled, red triangles show observations. Peru records very old - 1920s, 1930s - some specimens, some sight records.

Ken - in Tapuis (sp?)

Paul, yes

M-I - fragmentation and development (see timeline) in Colombia

Paul - range extent not changed, but amount available surely decr. In Ec during BBS period, but I don't know when, petroleum devl in Amazon basin caused opportunity for incr acces from west to east slope of Andes where cerw had been, and gov't encouragement for highland people to colonize east slopes - surely going on robustly in early 90s

Brett - need to have that conversation in US - not range, but amt of area avlbl in range

Mark - maybe more for breeding range - kernel analysis?

Ken - but no time series

Paul - have done Monte Carlo work, but given # of routes and # of birds ... shows how abundance has moved around in the range

Life History

Key life history attributes - vulnerabilities and resiliences

Paul - biology of females - unmeasured

Jason - female survival

flurry of female-based responses

clutching/brooding - 3-4 attempts (max of 7, with reuse of nest materials 3 times, and eggs laid in 4 - so maybe should be counted as 4, not 7)

Ken - not too many songbirds are singlebrooded - that does set them apart from other songbirds

Paul - and links to early fall migration

Ken - think cerw may be more concentrated, leap-frogging with concentration at traditional stopover locations - shore-bird like. but giant data gap re fall migration path

Steve - breeding site fidelity?

Jason - no idea of female site fidelity - banded 7 females and all came back - that's it

Paul - capability for adult postbreeding dispersal demonstrated for males is a really strong resiliency feature to me

Jason - my sense is that the degree to which we seen dispersal of adults to new breeding sites (in the year following successful breeding) is pronounced

Paul - adult interannual breeding dispersal

Dave - how strong evidence that different for cerw?

Jason - most evidence is that natal dispersal is much higher than adult dispersal in most species of warbler, not in cerw - isotop

Ken - research needs - if most of info is from isotope anal, need to get that clearer

Jason - and molting patterns - if they're a molt migrant, game is over

every year, 50% of males are unbanded. In north, the other 50% are from relatively nearby, but in core of range, come from farther away.

M-I - nonbreeding site fidelity and habitat selection, need to know core areas of wintering grounds

Ken - seem to be more specialized than most migrants?

Paul - maybe

Ken - most migrants can be found in a wide variety of places, not cerw

Paul - if for some reason, attractive habitats are not good, or if age/sex desegregation puts some birds in harms way ...

Jason - and in some places, males are higher than females.

Ken - starting to learn that female habitat often more vulnerable than male habitat - more marginal

Dave - just learned regional breeding habitat corresponds to regional overwintering habitat

Jason - migratory connectivity

Dave - still don't have it completely figured out

Jason - Kate's data show north-to-north, south to south pattern - isotope data, but not as strong as shown for some warblers.

Steve - riskiness or resilience

Paul - riskiness - more for us in proper altitudinal zone in t ...missed

Jason - just theoretically incr risk - stochasticity

Pat - don't know anything about post-fledging survival

Ken - so could be whole habitat components we aren't keying in on.

Pat - issues on habitat selection on wintering grounds should also apply to breeding grounds.

Ken - yes, ceruleans are more picky, for whatever reason. habitat selection could be one of single largest risk factors

Brett - what about patch size?

Pat - landscape dependent

Paul - in w part of range, woods in larger patches

Pat - most of Appal plateau heavily forested anyway?x

Ken - is fragmentation a threat to the species - probl not in core of range

Jason - let's talk about gaps

Steve - later

Paul - do juvenile survival and adult separately - may interact, but may have way to measure one or another

Jason - I was thinking more of dispersal between year 1 and year 2. hint from isotpic is juv dispersal not a wide as in other warblers

Paul - fact that adults move around may mean they're tracking something but there may be an "it" they're tracking.

Jason - they disperse after successful breeding

Paul - may still work -- can be successful in less than perfect places

Ken - cumulative impacts

Paul - but adults disperse more than young

Dave - I don't believe it

Jason - probably right - can't compare. Adults more than expected, young less than expected, but don't want to compare young and adults

Steve - last round

Mark - under specialization - interested in suitability - what is optimal habitat?

Jason - lots of basic demographics - implicit in reneest - clutch size, brood size, life span, lifetime repro success, partial brood reduction as an aspect of brood size ...

Jean - generation time

discussion of generation times

Brett - needing large deciduous trees as emergents, and multiple layers - forest structure

Ken - could go into as much detail separating habitat features as separating demographic bits. set of habitat features that are rare and run counter to current land-use trends- large trees, complex canopies ... not naturally come by.

Randy - can take a long time to create

David - food habits/foraging ecology haven't through about

Theresa - nectar important

Ken - not unique, but may be important - may be important as resiliency

Randy - may be an oddball - body size and wt in terms of a long-distant migrant?

Wayne - for some sp, once you reach a certain age, but don't repro successfully until later - only oldest indivs actually add to population. But constraint is that as survival goes down, those indivs drop out differentially, leaving a higher proportion of inexperienced reproducers. Is there an interaction between lifespan and repro ability? - age dependent repro success with fitness tradeoff (brett and paul)

Ken - that makes me think about migration - in spring, all these migrants ready to reproduce. incl experienced indivs - may make repro useful indivs more vulnerable in those single event masses of birds - in fall, earliness makes them vulnerable, in spring, might be concentration of experienced adults.

Ken - because they join mixed-spp flocks are overdispersed and don't end up at bes sites.

Jason - I think it's related to food avlty - in flocks are hyperdispersed. may be vulnerability because needs lots of habitats that way

Paul - and anything that affects other species in mixed flocks can affect cerw.

Need to consider interactions with other spp on breeding grounds, and other peculiar behaviors. How these species interact with nesting material ... Female cerw and female redstarts fighting over nesting materials ... Whole issue of coloniality not clear - may be Allee effects in which case patch size and fragmentation may become key. mating system - measure of EPF

Lunch

Cause and effect relationships

Steve - characterizing the body of evidence will become more important this afternoon.

Tom ringleading this session

ranking propositions regarding causality and discussing evidence underlying them
time frame of reference is the BBS frame - 1966 to present

Ken - to paraphrase, you want to know why they're declining

Ken - based on everything we talked about this morning - 40 downward trend in cerw is highly correlated with cutting of tropical forests in the Amazon.

rework that to get to proximate issues

1) loss of forest habitat (deforestation/conversion) at mid elevations in n Andes, (principally on eastern slope) has led to reduction of availability of winter habitat, reducing winter survivorship, driving decline

We've established they're somewhat specialized, so everything that comes with habitat - probably foraging.

Dave - begs the mechanism - if it's gone when they come back, they'll find another forest tract, but at some point, something happens

Pat - don't know if it's energetics or predation - all or some could be functioning

Dave - don't know if it's lower survival on wintering ground or lower fitness for spring migration and mortality on migration after a hard winter

(olive-sided fl, woodpeewee, scarlet ta, blackburnian wa, bay-breasted w, blackpoll w are other midelev Andean migrant

Dave - losses of habitat and degradation of breeding habitat due to parasitism and predation in MLAV are main drivers of decreases there

2) Loss of quantity and quality of breeding habitat causing lower repro success due to increased nest parasitism and predation of MAV, also up into Ohio Valley, possibly to alluvial/major river systems

Rosenberg - since 1966?

Dave - soybean

Pat - lots since 1966, but does the BBS show it?

Paul - overwinter survival of cowbirds was probably improved after soybean production increase

Tom - everywhere?

Paul - western half of the range extending into Ontario

3) Increased agricultural production improves overwinter survival of cowbirds leading to larger cowbird pops leading to expansion of cowbirds and incr nest parasitism and nest predation

Jason - do we have any evidence other than persistence that pops are breeding at a level that can produce stable pops

Dave -

4) increased pred on eggs and nestlings is leading to decreased nest success and productivity

Paul - predator?

Dave - varies - birds and mammals

Jason - blue jays, chipmunks and black rat snakes on our study sites

Jason - and food limitation on the breeding ground limiting

brood size limited by resource available to females (by food limitation for females)

Tom - assume resources must be decreasing - can we get a driver?

Jason - really pushing envelope for migration relative to body size

Tom - that makes them sensitive, doesn't drive decline

Dave - if females return to breeding ground in poor condition due to food resources...

Tom - what's the driver?

Dave - difficult - sum total of available resources

Tom - decreasing prey avlbty?

Jason - timing of avlbty of food resources, climate change

5) increasing disconnect between food (flush of insects) and arrival time of females on the breeding ground, due to climate change, is reducing resources available for female breeding, and hence reproductive output (females are right on the edge physiologically ...)

Ken - need to take a step back - we're confounding things that have to do with habitat and have to do with demography - fundamentally diff hypotheses could be explaining decline - either loss of habitat is causing decline or something is happening to remaining birds in remaining habitat. pretty shaky ground - have to have evidence - if incr in pred'n then have to have evidence of crash in forest birds.

Pat - I'm with Ken on that one

Ken - something demographic doesn't have to be going on to cause a decline

Ken - in addition to habitat loss, degradation of quality as mediated by disturbance agents - loss of fire, incr deer, limited canopy disturbance causing homogeneous canopies

6) loss of heterogeneous forest structure within stands in core of range in uplands, possibly caused by loss of fire, incr deer, limited canopy disturbance has caused decr nest success because in suboptimal habitat - less succ foraging, risk to nest - we don't know what the proximate causes could be (Appal BCR, but could be anywhere)

Tom - do birds stay but produce fewer young

Pat - assume reduced recruitment, possibly reduced adult survival?

Ken - any evidence that birds will stay in suboptimal habitat?

Tom - evidence comes later - get hypotheses down now

Dave -

7) loss of quality post-fledging habitat leading to lower juvenile survival (possibly early seral stage)

Randy

8) loss of suitable stopover habitat in southern US and Cent Am has led to increase in mortality during migration

Wayne - something must affect both survival and repro because both appear to be necessary to bring populations up in general - so having a hard time getting to one thing.

Jean - can be a combination

9) lower availability of suitable nest sites leads to (increased energetic costs of nesting and) reduced reproductive output (and incr mortality?)

Pat - prox/ult causes - talking about recruitment and mortality rates and we know nothing about them, particularly as a fkn of some other factor - no historical info, no spatial comparisons. maybe not stress proximate causes so much, rather than ultimate

Ken - drilling in on Wayne's, controversial - if the single common denominator is super tall trees, then decades of high-grading probably had an impact on habitat quality.

10) decades of highgrading resulted in lower nest site availability and lower nest success

Pat - I'm wondering how different 6,9, and 10 are. Also, FIA says we have more big trees

Brett - not necessarily emergent tho

Ken - just all getting bigger.

Pat - still think 6,9, and 10 could be wordsmithed into one

Ken - but might find better subsets of 6

David -

11) forest management in Appal in core of range is responsible for loss of habitat and degradation of hab qual leading to reduced reprod output

Tom - what aspects of forest mgt

Dave - clearcutting and other aspects of forest mgt have in some cases degraded habitat or reduced it.

Wayne - is that different from what we have?

Dave - different because different causal agent - forest mgt.

Ken - what do you mean by forest mgt? clear cutting, selective harvest

Dave - really mean logging in general

Tom - S Am

M-I - if patch sizes and connectivity in S Am are enough for ceruleans - if stopped disturbance now, remnants might not support cerw.

12) increase in forest fragmentation on wintering grounds has led to declines in overwintering survival beyond effects of habitat loss. becomes #2

Jason

13) migratory connectivity in cerw has contributed to declines by creating disproportionate vulnerability to habitat loss at both ends of range

Ken

14) proliferation of large-scale surface mining in last few decades has contributed to overall pop declines of cerw. (addendum from Paul) effect is disproportionate to area modified due to hard edge effects (Ken - any cerw particularly affected due to nearly 1-1 match betw coal and core cerw habitat)

Dave - but what happens to birds - where do they go?

Randy

15) urbanization/development/extractive resource use through range has removed habitat and fragmented habitat, resulting in pop decline

Mark

16) tree pathogens have reduced # of elm, chestnut, oak, leading to change in structure/nest-site avlbty ...

Ken

17) large increases in white-tailed deer have led to decreased regen, loss of understory, affecting habitat structure

break

/explanation of ranking process to see if we need to reorganize the proposals/
issues for the future

T. acid rain.

Dave -

U. incr violent weather in Gulf of Mexico during migration will further reduce survival

Ken

V. changing forest ownership - parcelization - fragmentation and habitat loss - future declines

Wayne

V. dramatic reduction of forest industry markets will result in change in forest structure

X. Avian diseases lead to increased mortality

Y. change in the cover of shade plantations will result in reduction in avl habitat in nonbreeding season

Z. development of wind power along Appalachians will incr mortality

Jason - I have the sense that the species is at its limit and can't take more - may not be able to recover even with creation of good habitat.

~~AA. productivity is too low to sustain future habitat loss~~

Tom - what would

Jason - increase demographic processes - get more output

Wayne - but you said you'd get good habitat

Jason - I don't think that will do it

Wayne - but that's the definition of good habitat

Jason - I'm not sure we know what good habitat is

Mark

AA. frequency and intensity of catastrophic forest disturbance will reduce forest quality

Ken - besides sudden oak death and reduced oak gen - modify p - now reads

P. Oak diseases or lack of oak regeneration will restructure the forest.

lots of discussion of how to lump or not, then code, then break

Everyone agrees that clearing of Andean midelev forest is the worst problem.

fragmentation, shade plantation avlbty, stopover habitat and heterogeneous habitat structure (within-stand) are the next level.

Paul - of 28 propositions, 25 are in N Am, only 3 can tell us about wintering habitat.
Panel is better equipped to sort out fine stuff in N Am, than in S Am.

Ken - so if we had collapsed these, the structural stuff which is scattered in many propositions might have scored higher if it had all been lumped together.

Pat - we tended to split up some topics very much and others not at all.

M-I - many subjects are repeated

Ken - where things overlapped, I gave them all the same score, which should help get away from that. still more spread in some areas than others.

/long discussion of how to interpret the results/

Wayne - if leave saying most important threat is wintering ground, I think we've done a bad thing

/discussion of meaning of high scores on wintering items/

Dave - it's double jeopardy - need both wintering habitat and successful repro

Mark - what about "most important winter component, most important migration component, most important breeding component." not useful to pit most important against each other. better to look at each geographic areas and look at rankings within

Wayne - agree, but results suggest there is an opinion hierarchy

Ken - no - more unanimity that wintering grounds are important than that other things are important. but given we're all smart people, and if a few of us think something's important, needs to paid attention to. I think we've shown that in all the categories there are things that are important.

Dave - re demographic model. in presentation it's clear that there's uncertainty, but Jim has done this analysis with about 30 species, and the cerulean is the only one for which the numbers won't add up. others include Henslow's sparrows. Productivity just isn't enough to get us up to lambda near or over 1 - I think it's a pretty accurate representation of what's going on. So some significant issues on productivity end of thing, but why they are different from other species, I'm not sure ...

Jason - and when we get to mitigation, have to be able to identify what we're trying to ameliorate

Pat - but we don't know enough

Jason - but shouldn't not do it because it's hard

Paul - I think we'll beat our heads into the wall

Jason - but many recovery plans have done it