Recovering natural history designata in the Northeast: interdisciplinary efforts in ecological linguistics

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1. Introduction

• Indigenous terminologies for natural history---ecological, botanical, and zoological---hold great value for linguistic and cultural revitalization, historical reconstruction, and simple lexicography, among others.

• For languages of the Northeast (roughly: New England and northeastern Canada), however, radical changes in the physical and linguistic ecology of their speech communities now often severely limit direct native speaker access to this traditional knowledge.

• Recovery of designata is a fundamentally interdisciplinary effort: linguistic + nat'l historic expertise.

• 2 major outcomes of our collaboration:

(a) effective methodologies for recovering designata when native speaker expertise is unavailable, and problems therein

(b) how these apply to recovering several bird and plant terms in Penobscot and Passamaquoddy-Maliseet.

• A hybrid process from the start: back-and-forthing between the linguistic and the nat'l historic.
• Laying out out explictly methodologies that is is often implicit/ad hoc set of methodologies.

• Outcomes independently useful, also good for native speakers and learners alike to reawaken linguistic memories, and the other bodies of knowledge tied into them.

2. Why and how

• Key to linguistic and cultural revitalization, and for historical-linguistic reconstruction and lexicography. (And the interplay between all these.)

• Polysynthetic wordforms often descriptive, potentially offering new perspectives on the designatum that can better inform our understanding of indigenous knowledge across a wide range of domains: zoology, botany, medicine, agriculture, ecology, economics, anthropology, and history, among others.

• Work often assumes access to knowledgeable native speakers; for many, no native speakers may be available, or, due to social, economic, environmental, and other changes, native speakers may no longer be familiar with the relevant lexicon, either in whole or in part.

• Focus here just on methodologies for recovering designata when native speaker expertise is NOT available. Results can also of course be put towards re-elicitation with current speakers.

2.1 What constitutes "recovering" a natural history term?

• Assumption: to know a term is to know its FORM (= sound/sign) + CONTENT (= meaning, usage); then...

(1) Minimal critera for recovering a term = knowing...

(a) its precise morphophonological FORM, and any unpredictable/irregular patterns thereof

(b) its precise CONTENT: the exact designatum/a, and especially how it may not align with established Euroamerican scientific+folk categories

• In many cases recovery may be only partial, on one or both parameters.

2.2 Recovery methodologies

(2) Recovery methodologies

(a) internal and comparative linguistic reconstruction

(b) critically applied knowledge of properties of the designatum, past and present

• One can rarely be done without the other.

(3) Recovery flowchart

phonotactics = featural inventory, syllable and word-edge constraints
\+ morphotactics = what morphemes can be where, e.g. [Initial-Medial-Final structure]
↓ ↑
[morphosemantic composition] →← [designatum candidate properties]

• A back-and-forth process: designatum possibilities can suggest and limit possible specific morphemic forms, while available data on form can suggest and limit which morphemes (and therefore components of content) can be proposed.

• Linguistic knowledge alone is insufficient. Linguistically unskilled documentation can very readily produce data that is problematic both in morphophonological form and in semantic content; natural-historically unskilled documentation can also produce equally implausible/inaccurate records of content, of what designates what.

• This work is therefore necessarily interdisciplinary; best results from collaboration of specialists in both.

2.3 Error, variation, and change

• Where does error come from, between knowledgeable native speaker to decent documentation?

2.3.1 Variation and change

Linguistic usage is inherently both variable and ever-changing, with the distinction between genuine variation and individual error not always clear-cut. One generation's error can be the next generation's norm, and same again for dialects, famililects, and idiolects. This is even more so when a language becomes marginalized. Fragmentation of the speech community---across spaces of use and generations of speakers---typically creates ever more variation.

• Pb (4a), rel. to EAb (4b) and WAb (4c); quite different from PsmMl (4d, e) and Listuguj Mq (4f):

(4) Cross-dialectal adventures of 'robin'

a.	wihkʷáskehso	'robin (Lit: "creature that stretches his legs in hopping") (*Turdus migratorius* L.)'	
b.	k8ig8késs8	'Merle'	(Aubery 1995: 358)
c.	Kwikueskas	'A robin.'	(Laurent 1884:37)
d.	ankuwiposehehs, ankuwiposiyehs	'American robin (*Turdus migratorius*)	
e.	om´-kwi-pŭ-se-hĕs´, tchi´-la-tchi´-li	'robin'	(Ch:36)
f.	gapjagwej	'robin'	(CQ field notes, summer 2012)

• Variation in Pb: Siebert 'ovenbird' (5a) = 'robin' (5b) for one Pb speaker (JF, p.c., ca. 2001); cf. (4e) above.

(5) Pb 'ovenbird' vs. PsmMl 'song of the robin'

a.	čiláhčəli	'Ovenbird (*Seiurus aurocapillus* L.)'
b.	cilahcili	'(imitative) song of robin'

• Unlikely to be an error; more likely a lectal variation of usage.

2.3.2 Native-speaker error

• Speakers can make erroneous identification: some direct and detailed knowledge of the designata; others have only heard in passing.

• Radical shifts in lifeways in recent generations can put even the oldest speakers into this second group, particularly for species whose original distribution (and relation to the speech community) has been disturbed.

• A word heard only in passing can be mislearned, or misremembered when correctly learned but rarely used.

• Speakers may not have a matching knowledge of designata terms in outsider languages (English, French).

• (Recent history+ideology often have not allowed opportunity for balanced, in-depth education in both systems.)

• Taxonomical, categorical traditions also rarely correspond perfectly across languages and cultures.

• Sometimes still recoverable from other sources, esp. native perspectives even from speakers who do not know the specific term.

• A trained linguist (native-speaking or outsider) working from field guides is better than nothing, but there is ample room for error there, which the collaboration of an experienced naturalist can readily identify and avoid.

2.3.3 Non-native-speaker error

• Many extant records are produced by non-native-speakers,can miss, mis-hear, or unreliably record certain phonological contrasts, and also be unaware of what principal parts of a lexeme must be documented to have a complete account of its form.

• Native speakers can do the same, particularly when the recording technology---i.e. the writing system used---limits what contrasts are actually documented.

3. Recovery methodologies

3.1 Internal and comparative reconstruction

• Internal reconstruction = apply known principles of phonotactics and morphotactics (plus the known morpholexicon) of the language itself to identify uncertain forms.

• Comparative reconstruction = draw in further relevant data from genetically (or just areally) related languages.
- = WAb, EAb (Caniba, Penobscot, etc.), PsmMl, + Mi'gmaq dialect continuum
- = further E. and C. Algonquian; direct loans, semantic calques from N. Iroquoian (Mohawk, etc.)

• At least 2 different and potentially simultaneous processes involved in lexicogenesis

(a) morphosemantic construction of the polysynthetic wordform as a literal-descriptive term, with further extension to figurative, metaphorical, and other uses

(b) sound-symbolism...which does not always follow familiar morphosemantic constructional patterns

• Major role for (b) in natural history terminology.

• Cf. Pb, EAb, and WAb 'robin': clearly similar and related in form, but not directly cognate in the simple sense.

• Instead, their Initials are variations on a phonetic theme.

• Maybe from semantically transparent morpheme (cf. Pb wihk^{w}- 'grab, pull')---or that itself is from folk-etymological reshaping of an originally sound-symbolic form.

• Needless to say, the directionality of this kind of change is not always readily establishable.

3.2 Properties of the designatum, past and present

- What properties that might reasonably motivate a descriptive/sound-symbolic wordform?
    - distribution
    - salient properties/behavior of the species, both currently and in the past
    - known relations of the speech community (again, past or present) with the designatum:
        - economic
        - spiritual
        - technological

- We will see these factors emerge at key points in recovery efforts.

4. Applying the methodologies

4.1 Overview

• Examples of recovery!

• Mostly from Chamberlain's 1899 *Maliseet Vocabulary.*

• Attributed primarily to speakers James and Mary Paul (of Apohaqui), among others.

• Documents many terms not originally in the *PMD*, but some have now been validated by speakers to add in.

• Presentation is organized primarily from the linguistic side, but we will see again and again that real-world knowledge of the candidate designata can pick up where purely linguistic methodologies drop off, and that a dialogue between these two approaches can often give decisive or at least illuminating results.

4.2 Phonological problems

• Most premodern work ignores (or inconsistently documents) two key features of Northeastern-area phonology.

(6) Phonological problems in documentation

a.	/h/ in /hC/ clusters	(for descriptive convenience, hereon called "preaspiration")
b.	contrastive accentuation	(esp. in Pb, and that associated with a dropped final vowel in PsmMl)

• A smaller but significant problem: inconsistent contrasting of schwa from other vowels in transcription.

4.3 Morphophonological problems: diminutive and augmentative

• Diminutive and augmentative morphology are a foundational component of the nominal lexicon in particular.
• Pervasive in zoological terminology.

• Distribution not fully understood; esp. bad where phonological documentation is incomplete.
• Often the only difference between related etyma, so their their patternings need to be understood better.

• Further complicated by (a) and (b) above, since dim/aug can contrast both /hs/ and /s/, as seen in Pb (7a, b).

(7) -hs '[augmentative]' vs. -s '[diminutive]'

a.	mkàsehs	'charcoal, dead coal' [AN[sic]]	[N.B.: genders reversed in ms.?]
b.	mkàses	'ember, small coal, small live coal' [IN[sic]]	

• PsmMl, final /hs/ (aug, (8a)) contrasts with underlying /hsu/ (< nominalized diminutive intransitive verb) ONLY in the distinctive final accent, which comes regularly from the drop of the final /-u/ (8b).

(8) PsmMl final /hs/ vs. /hs(u)/

a.	wahantuhs	'insect, bug; cockroach'	|wahantu-hs-| devil-AUG	pl. wahantuhsok
b.	mahtoqèhs	'snowshoe hare (*Lepus americanus*); (also, in general) rabbit' |mahtoqehsu-|		pl. mahtoqehsuwok (var. mahtoqehsok)

• All 3 typically documented just as <s>; and w.o inflected forms (which can in part recover dropped vowels.
• A fourth possibility, /ss/, also not orthographically contrasted.

• In many cases, the best we can do is set up an underspecified, placeholder /-S/.

(9) Diminutive and augmentative in Pb (modulo sound correspondences, evidently also PsmMl)

a. -s diminutive (older, not clearly productive)

pàles	'(passenger) pigeon'	< *pəle- cf. pəléhkαhti 'p. pigeon gathering place',
pàlenikʷ	'flying squirrel' (cf. Cree pinêw)	
skʷàtes	'redstart'	cf. skʷàte 'fire'
pàsəwis	'domestic cat'	cf. pàso 'bobcat'

b. -(ə)hs augmentative/decrepitive

wətahsehs	'h/ old, worn skin'	<*ahse-(w)- 'skin, clothing'
mátessəss	'oyster'	cf. ess 'clam'; mat- 'rough', i.e. = 'rough old clam'
ssìpəss	'green-winged teal; duck'	< *ahsip- cf. numerous Alg cognates
nóhkhamənəss	'bittern'	cf. nóhkhamən 'flour'

c. -(ə)hsis -hs + -s collocation (evidently the current most productive diminutive)

petαkíhlehsis	'swallow [bird]'	cf. pétαki 'Thunder Being', -hle 'bird'
matekəníhlehsis	'bat [animal]'	cf. mátekən 'skin, leather', -hle 'bird'
pàsəwəssis	'kitten'	cf. pàso 'bobcat', pàsəwis 'domestic cat'

d. -(ə)hso *-hs + i + W (< nominalized -hs-i diminutive intransitive)

nikətawáləwehso	'common tern (*Sterna hirundo*)'	cf. nikətaw- 'forked', -αləw{e/α} 'have ... tail'
mαtáwehso	'porcupine, hedgehog'	cf. mαt- 'move', -awe 'have, do with ... fur, hair'

e. -imis (diminutive of more limited distribution, possibly more diminutive than -hs-is)

nətohkánimis	'my younger sibling'	cf. nàtohkan 'my favorite younger sibling'
nətósimis	'my parallel niece'	cf. nàtos 'my daughter'
nənemάnimis	'my parallel nephew'	cf. nànemɑn 'my son'

f. -(o)hč explicit pejorative (rare, attested in only these three forms in Pb)

áwenohč	'white person, non-Native'	cf. àwen 'who; someone'
áləmohč	'damned dog, cur'	cf. áləmoss 'dog'
táwɑlohč	'yellow-shafted flicker (*Coloptes auratus*)'	cf. taw- 'having a hole', -ɑlo 'tail'

• A solid understanding of dim/aug distribution could help clarify phonologically ambiguous documentation.

• (Though of course it runs the risk of "creating" data that fits the model, if we are not careful.)

4.4 Sparrows, and the non-correspondence of diminutive and augmentative

• Dim/aug often is all that varies between otherwise cognate forms. (Tend to stay close in size-classification.)

• E.g. PsmMl w/ productive diminutive -hs-is (10a, c), corresponding to Pb forms w/ -hso (10b, d).

(10) Sparrows and non-corresponding diminutive forms

a.	ki´-ka-ni-e´-sis	'Sparrow'	(Ch:36)
	kihkaniyehsis	'sparrow (species uncertain)'	
b.	kkihkɑníhlehso	'chipping sparrow, (*Spizella passerina* Bechstein)'	
c.	ka´-kăs-kŭl-tchĕs´-sis	'Sparrow, song'	(Ch:36)
d.	kɑkaskáləčehso	'song sparrow (*Melospiza melodia* Wilson)'	cf. -aləč.e- 'belly'
e.	/kakaskolcehsis/		
f.	sŭl-sŭl-sĭ-li´	'Sparrow, Savannah'	(Ch:36)
g.	sohsólsəli	'white-throated sparrow (*Zonotrichia albicollis* Gmelin)'	
h.	/sulsulsoli/ or /suhsulsoli/		
i.	kŭ-lak´-sis, wa-pe´-pe	'Sparrow, white-throated'	(Ch:36)
j.	klàhkʷsəss	'Tree Sparrow (*Spizella arborea*)'	[possibly: /kəlàhkʷsəss/]
k.	/kolaqsoss/		

• More dim/aug variation will be seen.

• Natural history +morphosemantics here can determine uncertain designata, or at least narrow the search space.

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• PMD (10a) as 'sparrow (species uncertain)', vs. Pb cognate (10b) explicitly 'chipping sparrow'.

• Ch 'song sparrow' (10c) = Pb cognate (10d); but 'w.-throated sparrow' identifications diverge across (10g, i).

= three most common sparrows in Maine and adjacent areas.

• Chipping sparrows routinely feed in open areas and are found in fields, driveways, and gardens.

= morphosemantics of (10a, b) = PsmMl *'kihkan*, Pb *kkihkɑn* 'garden' + PsmMl *-*h(e)*, Pb *-hle* 'bird'
= 'little garden-bird'

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k.	/kolaqsoss/		

• This species would thus likely be the one most commonly encountered by Ml speech communities as well.

• This alignment of morphosemantics with known designatum properties, plus process of elimination given the other terms, strongly suggests the chipping sparrow as the specific designatum for the PsmMl cognate. (It could of course easily double as a generic as well.)

• Of terms not currently in PMD, it appears likely that we can recover 'song sparrow' as (10e); determining the designata of /sulsulsoli/ and /kolaqsoss/ is trickier.

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k.	/kolaqsoss/		

• Both appear to share a cognate Medial: Pb *-aləč.e-*, PsmMl *-olc.e-* 'belly'
• PsmMl (10c) Initial is evidently/kakask-/, corresponding to Pb kɑkask-.
• Initial unknown; p'haps reduplicative of *kask-* referring to the chest (11a-c), > Initial 'straight down' (11d).

(11) kask- 'straight down' (associated with chest)

a.	kaskímikan	'breast, chest, sternum' [IN]
b.	kaski-mikáyikan	'sternum, breastbone' [IN]
c.	kaski-míkikan	'stomach' [IN]
d.	káskihle	'AN/IN goes straight down, perpendicularly' [1s: nəkáskihla]

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• A distinctive dark vertical patch on the upper chest is the primary field identification mark for the song sparrow. (It is also found on the tree sparrow, but this species is primarily seen in the area only in migration, and is an uncommon winter resident.)

• Morphosemantic data is less that iron-clad; overall points in same direction as original documentation glosses.

• (10f-h) and (10i-k) are least easy to resolve.

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• Chamberlain has (10f) as 'savannah sparrow', which is uncommon in Ml country. Vs. Pb 'w.-throated sparrow'.

• Vocalism /o-o-i/ matches well with the white-throated sparrow's /LOW-LOW-HIGH/ call (can also be reversed), if read following cross-linguistic sound-symbolic alignments:

high back vowel (o) = low pitch high front vowel (i) = high (tracking formant structure),

• And not with that of the tree or savannah sparrows. → Siebert ID for Pb might also hold for PsmMl.

• If so, then (10i) must have another designatum, if it is not just an alternative term for the same.

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• Here cannot evaluate Siebert's identification as the above-mentioned rare-in-the-region tree sparrow, since the etymology (beyond the double augmentative) is unclear.

• However, both attestations do suggest modifications to the other.

• Pb /kl/ generally corresponds to PsmMl /kh/; it's likely that Siebert simply heard a /kəl/ sequence with weak schwa as /kl/

• Pb coda /ahkʷ/ suggests PsmMl /aq/ rather than /ak/, this being a common mishearing for English-based transcribers. (Here again sound symbolism leaves open the possibility for freer variation, of course.)

4.5 Basic recovery: comparison of cognates

• Cognate comparison

• Pb (= (12b, Xe)) retains final vowels deleted (with consequent accent) in PsmMl + solidly documented /hC/, so can often use to recover complete morphophonological forms w/ a fair degree of confidence.

• (12a-c) = dim/aug var. + Siebert re (12b), "named for the female which has a reddish brown collar in the spring".

• (12d-f) = a clear fit: kingbirds are very aggressive in defending their territory from potential predators, be they avian, human, or other domestic animals.

• (12i) = noteworthy as the PMD attests only (12j), while Ch (12g) is cognate with Pb (12h).

(12) Cognate comparisons (recovered forms in /.../)

a.	ki-kos-ko-wĕs´-sis	'Phalarope'		(Ch:36)
b.	kihkáskəwehso	'northern phalarope, (*Lobipes lobatus* L.)'		
		cf. kíhkəskəwe 'AN has a collar on, has a collar' (1s: nəkíhkəskəwe)		
c.	/kihkoskuwehsis/	(note again the same dim/aug variation as above)		
d.	mŭs-nŭ-tches´	'Kingbird'		(Ch:35)
e.	aməssánəčehso	'Kingbird (*Tyrannus tyrannus* L.)		cf. aməssan- 'ridicule, demean'
f.	/mossonocèhs/	|mossonocehsu-|		
g.	mi-tĕs´-sis	'Oyster'		(Ch:38)
h.	mátessəss	'oyster' [AN]		
i.	/motessoss/			cf. ess 'clam'
j.	pahsapsq	'oyster' [AN]	|pahsapsqe-|	cf. dim. pahsapsqehsis

(13) Cognate comparisons (cont.)

a.	sa-te´-mus	'Blueberry [CQ: = plant, not berry = <sat>]'	(Ch:42)
b.	sahtémosi	'blueberry plant' [IN]	
c.	/sahtemùs/	|sahtemusi-|	cf. sàht |sahte-| 'blueberry'
d.	ŭt-o´-ki-mus´	'Moosewood'	(Ch:43)
e.	atohkímosi	'striped maple (*Acer pensylvanicum*' [AN]	(regionally called 'moosewood')
f.	/otuhkimùs/	|otuhkimusi-|	cf. otuhk 'deer'
g.	mu-le´-tchi-so-yŭs´-sis mŭl´-tchĕs-sŭs´-sis	'Widgeon'	(Ch:37)
h.	[molocess	'mitten, glove']	
i.	/molocessossis/	'(*Anas americana* = American widgeon)'	= 'mitten' plus -hs-is
j.	màləčessəss	'American Golden-Eye or Whistler duck (*Bucephela clangula americana* B.)' [Note: "Old mitten" esteemed by Penobscots for food]	

• (13a-c), (13d-f): more simple recoveries.

• (13g-i) recovery of idiomatic term 'little mitten'; but see similar Pb idiom: difficult to evaluate from nat'l history.

• Comparison can recover potentially missed components in subtler ways.

• Chamberlain's form in (14a) could reflect a genuine falling together with or reanalysis as PsmMl *nuhkomoss* 'my grandmother', but the Pb equivalent (14b) more strongly suggests the reconstruction in (14c).

(14) 'bittern'

a.	no-kŭm´-ŭs	'Bittern'	(Ch:34)
b.	nohkhámənəsso	'bittern (*Botaurus lentiginosus* Montag)	
c.	/nukhomonoss/		
d.	Pokhamenes	'A bittern.'	(Laurent 1884:38)

• Missing /ən/ understandable: by general PsmMl accentual phonology (LeSourd 1993), it would both follow the primary accented syllable and have a weak schwa. This would effectively give [nukhəmnəss], where the /n/ could easily be missed after nasal /m/.

• WAb (14d) non-transparent morphology againfeeding affective or affinitive sound-symbolic reshaping: /n/~/p/

• Unambiguous example of sound-symbolism-based variation: Pb (15a), PsmMl (15b = PDM, Xc = Ch), and WAb (15d).

(15) 'whippoorwill'

a.	hʷippóləsso	'whippoorwill (*Caprimulgus vociferus* Wilson)'	
b.	wihpuloss	'(*Caprimulgus vociferus*) whippoorwill'	pl. wihpulossok
c.	hŭ-wip´-o-lis´	'Whippoorwill'	(Ch:37)
d.	Papoles	'A whip-poor-will.'	(Laurent 1884:38)

• Shared: dim/aug complex, w/ root complex varying w/in same onomatopoeic framework.
• Comparison also reveals where simple sound and morphology correspondence fails.

• Affective sound symbolism is a primary complicating factor here (e.g. 'robin', 'whippoorwill').

• Also in possible old initial reduplication and/or dissimilative deletion (Quinn 2002) also often show irregular sound correspondence.

• Hence alternations between initial vowels in Pb (16a) and PsmMl (16b).
• And initial consonants between Pb (16c) and reconstructed Maliseet (16d < 16c) + what one PsmMl speaker (DF) recalled---upon being presented with the reconstruction---as the form used by his brother (16f).

(16) Reduplicant (initial dissimilant) non-correspondence

a.	éləmɑnske	'star-nosed mole (*Condylura cristata*)'	
b.	olomansk, alomansk	'star-nosed or hairy-nosed mole'	
c.	nenémihkəčəss	'spotted sandpiper (*Actitis macularia* L.)'	cf. -əhkəči 'rump' + AUG
d.	ne-ne-měk´-tchŭs	'Sandpiper'	(Ch:36)
e.	/nenemikcoss/		
f.	enemikcoss	'sandpiper'	(DF, via RL, pc., 2013)

• General principle: morphological components that are semantically non-transparent (i.e. unproductive, or sound-symbolic) are particularly prone to reshaping: either to an equally "meaningless" (but possibly sound symbolic) alternative form; or reshaped by folk-etymology to a semantically transparent one.

• Irregularities in vowel correspondence also emerge from the same processes.
• Pb (17a) and PsmMl (17b): same /a/ vowel even though they never normally directly correspond in this context.
• Sound-symbolic effects again (or perhaps just direct borrowing). *(Partial devoicing of nasal in /mk/ = Ch's [p-k] transcription.)*

(17) Owls and vowel correspondence problems

a.	kamkáməsso	'saw-whet owl (*Aegolius acadicus* Gmelin)'	
b.	kap-ka-mŭs´	'Owl, saw-whet'	(Ch:36)
c.	kamkamoss	'barn owl (*Tyrol alba*)' (pl. kamkamossok)	(PMD)

• Pb and Ml source both point to the saw-whet owl (*Aegolius acadicus* Gmelin); PMD reports a different species.

• Barn owls do not breed in PsmMl territory, rarely sighted there at best (they are seen in very small numbers in York Co., Maine, on the far southern end of the state)

• More likely: the designatum is the same as established for Pb and Ml.

• Likely onomatopoeic: /kamkam/ could represent the high-pitched onset and drop-off of its very distinctive, non-hooting call, which does not resemble that of other similar coregional owl species.

- In PsmMl territory, three major owl species are commonly observed.
- Saw-whet (17) is the most common small owl.

• Barred owl is far and away the most commonly encountered owl in PsmMl territory. All documentation across PsmMl (18a, b) and Pb (18c) agree on a common form, an onomatopoeic name that closely resembles its hooting call (and is very unlike that of the saw-whet).

(18) 'barred owl'

a.	kuhkukhahs	'great horned owl (*Bubo virginiana*) or barred owl (*Strix varia*)...'	
		|kuhkukhahsu-|	pl. kuhkukhahsuwok
b.	ko-kok-hăs´	'Owl, barred'	(Ch:36)
c.	kohkóhkhahso	'Barred Owl (*Strix varia* Barton)'	
d.	wa-pe´-yit ko-kok-hăs´	'Owl, snowy'	(Ch:36)
e.	/wapeyit kukukhàhs/	|wapeyit kukukhahsu-|	[wapeyit '(AN) which is white']

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• Frequency of barred owl is p'haps why (18a) commonly heard as the generic transl. for 'owl' in PsmMl at Sipayik.

• PMD association w/ 'great horned owl' (18a) appears to be a recent-generation transfer (see below).

• Ch (18d) transparently 'white barred owl' (18e) = further supports use as a prototypical 'owl' term.

• The third major species is the great horned owl; all documentation agrees on a common term (with some PsmMl speakers apparently innovating THIS as a generic 'owl', and vice versa).

(19) 'great horned owl'

a.	tihtokol	'owl (species uncertain, possibly great horned owl, Bubo virginianus)'		
		|tihtokol-| (!)	pl.	tihtokolok
b.	ti´-tŭk-ŭl	'Owl, great horned'		(Ch:36)
c.	tíhtəkəli	'Great-horned Owl (*Bubo virginiana Gmelin*)'		

• W/ this in mind: final 'owl' term, given two glosses by Chamberlain: generic 'owl', and specific 'long-eared owl'.

• Not odd in itself: simultaneous generic and specific uses are typical of these lexicons.
• But the Pb sources disagree, and among themselves: (19b), vs. (19c = *Aegolius acadicus* Gmelin = saw-whet owl)

• Given (19) above, (19c) unlikely, esp. since that Speck's IDs are generally less reliable than others' (Siebert 1982).

(19) Another owl with vowel correspondence problems

a.	a´-se-kat´	'Owl'; 'Owl, long-eared'	(Ch:36)
b.	asáhkahte	'boreal owl, Richardson's owl (*Aegolius funereus richardsoni* Bonaparte)	
c.	ktci·ɋzaga‘´te, ktciɋza´ga‘´te	'Big-Screech-Owl' (Speck 1918:236, 237, given as "*Cryptoglaux acadica*") (cf. kči- 'great, big, venerable')	
d.	/asokàht/	|asokahte-|	

• Pb cognate sources also disagree in form: Speck's phonetics suggest a Pb form /αsakahte/, which lines up exactly with the PsmMl(19 reconstruction (19d) based on Chamberlain (19a). Siebert's form (19b) quite likely reflects two common errors: /a/ for /α/, and over-transcription of /hC/, in a form unlikely to be see much rechecking. (Genuine variation in an infrequent, opaque form still remains a possibility.) The PsmMl reconstruction in (19d) is therefore the most plausible, but not yet certain.

• Form so far morphosemantically unanalyzable. Speck (1918:236) explicitly noted that "[t]he name is derived from the native idea of its cry." This makes sound-symbolism a likely factor, along with its attendant potential for freer variation.

• What can natural history tell us, then, about the designatum possibilities?

• The long-eared owl, visually distinctive as the only other "horned" owl in this area, is found in southern, and coastal ME, but is rare even there.

• The boreal owl, is an infrequent but observable winter visitor in the northern two-thirds of Maine. It is also strikingly tame towards humans, in contrast to the saw-whet, with which it is most similar. Chamberlain gives no separate term for 'boreal owl', and as the species also gives name to a character in a Pb legend (Speck 1918), it is most likely a familiar one.

• The boreal owl fits best as the species more likely to be encountered by both the Ml and Pb speech communities, so unless the terms have redesignated (or are variants for one same species), Siebert's identification of 'boreal owl' seems most plausible for both languages.

• This is interdisciplinary collaboration.

• Linguistics side recovers most plausible scenario for a phonological form, but can do essentially nothing from morphosemantics.

• Natural history side can't conclusively identify designatum, but can narrow the search space almost completely.

4.6 Unearthing fossil pskek- 'muskeg, swamp'

• (20a): seemingly opaque Initial pskek- with the common Final -αtakʷ 'conifer, evergreen'

• Designation reinforced by explicit use in the name of the spruce partridge (20b), a regular denizen of its boughs.

• Central Algonquianists: recognize cognate to term meaning 'tamarack, larch' in Ojibwe (20c), among others....

• pskek- is a fossil reflex of PA *maškye·kw- 'muskeg, swamp' (cf. Cree maske·k), i.e. stem etym = '**bog-conifer**'.

(20) 'black spruce' and 'spruce partridge'

a.	pskékαtakʷ	'black spruce tree'	[CQ: AN, Picea mariana]
b.	pskekαtákihle	'spruce partridge (*Canachites canadensis* L.)'	[noted: "black spruce bird"] [current = *Falcipennis canadensis*]
c.	mashkiigwaatig	'tamarack' pl. mashkiigwaatigoog	(OPD, 20131015)
d.	sasokatokiyehs	(bird) grouse (locally called partridge; species uncertain, perhaps spruce grouse, *Falcipennis canadensis*)	pl. sasokatokiyehsuwok |sasokatokiyehsu-|
e.	se-se-ka´-ti-ke-ĕs´	'Partridge'	(Ch:36)
f.	/?-ek-atokiyèhs/	|?-ek-atokiyehsu-|	

• *(Chamberlain's term glossed as 'partridge' (20c) shows a partial affinity to (20b), and relates to CAlg forms.)*

• Bogs in this area have two major conifiers: black spruce and tamarack, so the difference with Ojibwe, etc. may be because distinctive terms for 'tamarack' exist in both PsmMl (21a, b) and Pb (21c).

(21) 'tamarack' in PsmMl and Pb

a.	pqomùs	'tamarack, hackmatack'	pl. pqomusiyik |pqomusi-|
b.	pŭk-wŭm-os´	'Hackmatack'	(Ch:44)
c.	mànəhok	'tamarack, Eastern Larch (*Larix laricina* (Du Roi) K. Koch))	pl. mànəhokak (cf. cognates in Cr and Oj)

• Penobscot attests a few sporadic shifts of initial /m/ to /p/ before an obstruent. Some may be fully reanalyzed as /p/+obstruent---compare earlier EAb (22a) to 20th-century Pb (22b) and (22c), and again, to(22d) with a related changed Conjunct (22e).

(22) Shift of initial /m/ to /p/ before obstruent

a.	mesakk8témin	'Meure [= Mûre]'	pl. mesakk8téminar (Aubery 1995:360)
b.	psáhkʷətemin	'blackberry (*Rubus allegheniensis* Porter)' [AN]	pl. psahkʷətéminak
c.	nəpəssáhkʷətemin	'my blackberry'	
d.	pkʷàmi	'ice' [AN] cf. PA *mexkwamy-	pl. pkʷàməyak 'pieces of...'
e.	pkʷamísihle	'icicles are forming'	cj. pehkʷamísihlɑk 'when...'

• Per Kerry Hardy (pc. 2013), assume /m→p/ means pskek- = predicted reflex *mskek- 'swamp, muskeg'.

• This makes sense of two other forms.

• Pb retains the PEA Final complex *-ətəmōhs 'woman' (cf. PA *metemw-ehs 'woman-AUG') only in (23a) 'Swamp Woman', and in (23b), a form given by Speck for a similar legendary figure, for whom this may be an alternative name.

(23) 'Swamp Woman'

a.	skʷéwtəmohs	'Swamp Woman: a benevolent female sprite who lived alone in the swampy wilderness and aided distressed hunters and travelers'
b.	/pskékətəmohs/	'[female legendary character]' after <pʻske´gədəmuʻs> (Speck 1918:237)

• (23a) combines main PA etymon for 'woman' (PA *eθkwe·w-) with this Final complex.

• Its given gloss, however, is the exact translation of (23b) under the current understanding of this fossil pskek-!

4.7 Terns and bird-tails: sneaky but simple morphosemantic comparison

• Morphosemantic analysis also allows reasonably confident reconstruction of Ch 'tern' (24a) as (24c), via Pb (24b).

(24) 'tern'

a.	nik-tu-lŭ-nĕs´	'Tern'	(Ch:37)
b.	nikətawάləwehso	'common tern (*Sterna hirundo*)'	(cf. nikətaw- 'forked')
c.	niktulonèhs	|niktulonehsu-|	(or possibly: /niktuwolonèhs/)

• Pb contrasts a general 'tail' root (Medial -αləw.e, Final -αlo) with a specific 'bird-tail' root (Medial -alan.e-, DN -alan.əss), as in

(25) Pb -αlo 'tail' vs. -alan 'bird-tail'

a.	kínαləwe	'AN has a big tail' (1s: nəkínαləwa)
b	kinálane	'AN (bird) has a big tail'
c.	nálanəss	'my tail (of bird) ; [bird speaking or human owner]' [IN]

• This 'bird-tail' root seems otherwise unattested in PsmMl, but assuming a regular reflex Medial -olon.e-, (25a) is simply the direct cognate of the Pb (25c) with the specific 'bird-tail' root replacing the general 'tail' root.

• Establishing this element in turn helps support recovering other terms, e.g.

(26) Other potential -olon.e- forms

a.	ĕs-wĕl´-nat	'Blackbird, crow'; 'Grackle, purple'	(Ch:34)	[NB: first comma ≠ 'or']
b.	/esuwolonat/	cf. esuw- 'back and forth'		
c.	pĕt´-lŭn-nat	'Cuckoo'	(Ch:34)	
d.	/pihtolonat/	cf. piht- 'long'		

• (26a) would readily refer to the common grackle (*Quiscalus quiscula*), a species with a relatively large tail that causes the bird to waddle as it walks across open areas.

• Initial in (26b) is less clear: only candidates are pet- 'arrive, come' (semantically unlikely here), or perhaps a misheard piht- 'long'.

• Black-billed cuckoo (*Coccyzus erythropthalmus* = most common sp. in area) does have a relatively long tail in proportion to its body size; not a prime identification feature, but true nonetheless.

• So /pihtolonat/ 'one having a long (bird-)tail' is plausible, but---rather unavoidably---not decisive.

4.8 Designatum shifts: real variation, or identification issues?

• Natural history expertise can help determine likelihood of real designatum shift vs. simple misidentification.

• Among the Passamaquoddies, *kiwhosuwasq* is a familiar and frequently used indigenous medicine. The term can be used for the introduced but now common *Acorus calamus* (sweetflag; locallly called "flagroot"), but likely applies (originally and still also) to the similar but indigenous *Acorus americanus*.

• Name analyzes transparently as 'muskrat plant': kiwhòs 'muskrat' |kiwhosu-| + -asq 'plant, plant material'.
• Pb: same term, w/ Pb-specific móhsskʷehso 'muskrat' (27b).
• But is given by Siebert as 'cattail' (*Typha latifolia*), with (27c) for *Acorus calamus*!

• However, field notes + at least one text (glossing as 'Flagroot') attest to its use as an important, major medicine.

• *Typha latifolia*: well-known for its food and utilitarian uses, but not medicinal/pharmacopeal ones.

• Unless some special redesignation or multi-designation has taken place (= pure speculation), it seems very likely that this is a misidentification on Siebert's part; (27b) almost certainly designates the Acorus medicinal plant for at least some speakers.

(27)	'flagroot'	= *Acorus americanus* → + *Acorus calumus*	
a.	kiwhosuwasq	'(plant in the genus Acorus; see note) sweetflag' [IN]	cf. kiwhòs 'muskrat'
b.	móhsskʷehsəwaskʷ	'cattail (*Typha latifolia*)' [IN]	cf. móhsskʷehso 'muskrat'
c.	átowəto	'sweetflag (*Acorus calamus* L.)' [IN]	*(K. Hardy: arrowroot?)*

• So, what is (27c)'s designatum, if not just a variant for *Acorus*?
• átowəto, unlike móhsskʷehsəwaskʷ, is scarcely mentioned in the documentation (still looking for the original attestion supporting its use in the PD!), which is unexpected if it is the (only) term for this important designatum.

• Also, what IS the Pb for cattail, a tremendously common and useful species itself?

• PsmMl attests (28), transparently and unsurprisingly 'marsh-plant', but no cognate or similar term is so far attested for Pb.

(28) PsmMl 'cattail'

pkuwahqiyasq	'cattail' [IN]	cf. pkuwahq 'bog, swamp, heath' (cf. Pb mə̀kəwahk 'bog, swamp')

• The question remains open.

• A comparable question of redesignation vs. documentary error: two designata have evidently swapped names.

(29) *Heracleum* vs. *Aralia* (29a, d, f) = PsmMl (29b, c, e) = Pb

a. paqolus '(*Heracleum maximum*) cow parsnip; root of this plant used as medicine' [NA] pl. paqolusiyik
b. pάkʷalohs 'spikenard (root or medicine), (*Aralia racemosa* L.)' [IN] ["Used as a vehicle and preservative in herb medicine"]
c. pαkʷálosi 'spikenard bush or shrub' [IN] pl. pαkʷálosəyal

d. mokahkewihqan '(*Aralia racemosa*) American spikenard, life-of-man; root of this plant; (*Aralia nudicaulis*) wild sarsaparilla' [IN]
e. makahkéwihkʷαn 'masterwort, cow parsnip (*Heracleum maximum* Bartram)' [IN]

f. mokahk 'striped bass, sea bass, black bass' |mokahke-| pl. mokahkiyik, loc. (pl) mokahkewihkuk

• Etymology of (29a, b) is obscure.
• (29c, d) seems based (in PsmMl) on mokahk(e-w-)-, at first blush relatable only to (29e), w/ no attested Pb cognate .

• But Pb also attests two terms referring to skin chapping (30) that may also be a better candidate.

(30) Initial makahk-, məkahk- '[skin] chapped'

a. makáhkihle 'AN has chapped hands' [1s: nəmakáhkihla]
b. məkáhkihle 'AN/IN is chapped' [ex: məkáhkihle nàton 'my mouth is chapped']

• The Initial here still does not explain -ew- component, however; and it varies unusually in initial-syllable weak vowel, which may indicate partial PsmMl borrowing, if it is not just recorder error.

• The Final, PsmMl -ihqan, Pb-ihkʷαn, is also uncertain.

• From a natural history standpoint, seems unlike that these could be conflated. Both are important medicines, but have strikingly different morphologies.

• And *Heracleum* has a strong fennel-carrot-coriander scent, while *Aralia* has a strong root beer smell....

(31) *Aralia nudicalis*

a. mi-ka´-ke-wi-kwan´-sĭs 'Sarsparilla' (Ch:44)
b. /mokahkewihqansis/

c. alαmímisi 'wild sarsaparilla (*Aralia nudicaulis* L.) [IN]

• (31a), reconstructecd as (31b), a diminutive of (31d) above, is almost certainly Aralia nudicalis, as it does look like a much smaller version of Aralia racemosa.

• Attested Pb term (31c) also appears correctly identified, since stems in -misi generally come from the fruit/berry term in -min.

• Putative *alαmimin would gloss as 'under-berry, inside-berry' (Initial alαm- 'inside, under'), likely referring to how the berry-bearing peduncle sits well under the canopy formed by the leaves, giving a distinctively two-tiered, "covered" structure.

5. Conclusion

• Always need to be careful not to assume same designatum for cognates ('black spruce' again, and fun with owls). But starting from there can at least help.

• Sound-symbolism plays an important role in variation and change; and plays merry games with non-transparent morphology.

• Still need to do much more, esp. w/longer-distance comparison (cf. black spruce + tamarack discussion).

• Interdisciplinary collaborations can recover, in whole or in part (or narrow down the possibilities for)

- phonological form

- designational content

- morphosemantic literal and figurative description, plus perceived relations (e.g. btw two *Aralia* spp.)

• Which is helpful for re-elicitation, and for all with an interest in the recovery of these terms.

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