Evaluating Compatibility between the Key Biodiversity Area Proposal Process and Indigenous Peoples and Local Communities Environmental Priorities with evidence from Canada and Mi'kma'ki (Nova Scotia)

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Executive Summary

This report will demonstrate that no meaningful (non-random) compatibility exists between the Key Biodiversity Area proposal process – as it now exists and is being implemented globally and in Canada – and the biocultural priorities of Indigenous Peoples and Local Communities (IPLC's)[1]. It is precisely because it is a global standard that no claim that KBA proposal meaningfully (non-randomly) reflects the values of IPLC's can be sustained. This larger conclusion will be demonstrated using a structural and a conceptual evaluation of the KBA program, followed by a desktop review of KBA proposal in the case region of Mi'kma'ki, the traditional territory of the Mi'kmaq People known in the English as Nova Scotia. This report will establish the general argument that the KBA program's established and currently-operating structure allows no meaningful (non-random) compatibilities between itself and IPLC environmental priorities. This remains true in spite of the fact that the KBA Canada Coalition currently holds institutional affiliation with numerous agencies and consortiums which do legitimately engage with IPLC environmental priorities. This structural argument will be buttressed by a conceptual review exercise of the KBA program and the aforementioned case application. A thought-experiment will help to further clarify the pertinent dynamics and refute common arguments in favor of a natural or automatic alignment between the KBA program and IPLC environmental values. Finally, results will be presented from a desktop evaluation of the compatibilities of the KBA delineation process in Mi'kma'ki and known environmental priorities of Mi'kmaq communities in the area. Findings from all exercises verify the structural and conceptual incongruities identified above and establish that no meaningful (non-random) compatibility should be expected between the KBA program and IPLC priorities. In summary, this report finds that there should be no confusion or uncertainty as to whether the Global KBA Standard or its implementation in Canada enjoy meaningful compatibility with IPLC environmental priorities, such as those held by the Mi'kmaq in Mi'kma'ki: they do not. This report will conclude with structural recommendations for communications and companion programming for KBA implementing parties.

[1] Though the IPLC term is suitably flexible to capture the dynamics touched on by the KBA program's global origins and implementation, this report recognizes that Indigenous Peoples of Canada have inherent and constitutional rights that are distinct from those of local communities.

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Structural Barriers: The KBA Global Standard and Uptake of IPLC Knowledge and Value

Substantiating the claim that the Key Biodiversity Areas program is, at present, structurally incapable of considering IPLC environmental values and priorities will require an overview of the KBA program. However, the basic argument can be stated up front: the process of establishing KBA's, including identification, delineation and proposal, operates exclusively on species occurrence data and performs spatial valuation of this data exclusively through quantitative ecological criteria which has been created, defined in a centralized organizational approach, and applied by in uniformity around the world. Consequently, at no juncture can KBA establishment in a given site adopt IPLC knowledge or values and thus cannot reflect them except by accident. The single insignificant exception to this larger structural inclination which this report has identified is that any stakeholder at all, including persons of Indigenous heritage and or Indigenous Peoples' governments can theoretically hand over occurrence data regarding species already-determined to be of interest, or information which could lead to such occurrence data, to KBA agents. A walk through the KBA process, as officially articulated within IUCN's "A Global Standard for the Identification of Key Biodiversity Areas," and its adaptation to Canada, "A National Standard for the Identification of Key Biodiversity Areas in Canada," will clarify these assertions.

The original charter for what would become the Global KBA Standard, was declared in Bangkok, Thailand in 2004 at the World Conservation Congress when International Union for Conservation of Nature called for a worldwide standard which, if used by all or as many countries as possible, could "locate and highlight sites that make significant contributions to the global persistence of biodiversity." (IUCN 2016: p4) Perhaps obvious, it is important to emphasize the extent to which what is determined to be 'biodiversity' is the singular focus and target for the program. This focus is openly argued to be a strength, in other words a feature and not a bug, of program design. Consequently, originating language of the program readily concedes that many geographic areas which are inarguably important for conservation are decidedly not to be accounted for in the KBA standard.

> "…other areas, which do not meet the global criteria and thresholds defined here may be important for other reasons, and in many cases, are managed as such. These include ...sites considered to be important at global, regional or national levels for other reasons (e.g. maintaining productivity, ecosystem services, aesthetics or cultural heritage…" (IUCN 2016: p2-3)

Here it is essential to flag this designation of cultural significance as outside the scope of KBAs. On its own terms, this is arguably an asset towards the efficacy and precision of the KBA program to meet its stated goals. However, it also belies any later claim of intention or capability within the KBA program to engage with or support IPLC environmental values and considerations. As hinted at above, close inspection of the exact interests of the KBA program

show that this incompatibility is further cemented through internal standards for data eligibility and analysis protocol.

Eligible data in the KBA Standard, or data which can be considered, are not defined outright in program documents, but must be inferred. Ultimately, these hew tightly to what are defined as "biodiversity elements" , i.e. "Genes, species or ecosystems" (IUCN 2016: p11). Of these elements, one prevails as the key to the others in terms of meaningful, workable data consideration, and that is species. This is because 1) species, as opposed to genes, can be easily documented to exist in specific places at specific times; 2) species are integral to the definition of ecosystems; and, of course, 3) species data, in the form of occurrence data (species observation + geolocation + time), exist in considerable, accessible, and mergeable data sets. All such occurrence data can be supplemented further through diverse, established and on-going active data collection such as various government protocols and citizen science. As a consequence, it can be shown how all applied criteria for delineating and proposing KBA in the Global and Canada standard flow from species occurrence data.

These criteria are laid out in Figure 1, in a table provided by the KBA Canada Coalition (2021). As indicated in the right column, 'Assessment Parameters,' primary input data are readily determined to flow from documented, geolocated and time-marked observations of specimens of a specific species, or in other words, occurrence data. The parameter 'distinct genetic diversity' may suggest otherwise as it indicates genomic sequencing of specimens and analyses to determine the proportion of genetic diversity represented by the sample in relation to the population as a whole. On paper, this metric of distinct genetic diversity is, in fact, presented as an exceptional one within the standard, and one which would feasibly include analyses beyond occurrence data. Again, on paper, this measure would indicate the proportional genetic diversity represented by a specific site's population in relation to the species wide genomic range, requiring genomic sequencing of local specimens and sufficient analyses to determine the relative diversity of the sample in relation to the species. However, the notation of this metric in Figure 1 can be misleading for a few reasons. For one, "the application of distinct genetic diversity as a metric in KBA assessments is not yet well tested" (KBA Canada Coalition 2021: p8). Secondly, in the most recent Guidelines for using A Global Standard for the Identification of Key Biodiversity Areas, distinct genetic diversity is simply "excluded from this overview" (IUCN 2020: p48). The reasons for the non-use of this metric are not hard to fathom. Taking the global picture into consideration, widespread genetic analysis of specimens and populations appears a daunting prospect for a currently operating program. In summary, all considered data in the fullness of the KBA Standard, is occurrence data or spatio/temporal constructions thereof.

A. Threatened biodiversity		
A1 Threatened species		Assessment parameters
A1a	≥0.5% of global population size and ≥5 reproductive units (RU) of a CR/EN species	(i) no. of mature individuals (ii) area of occupancy (iii) extent of suitable habitat (iv) range (v) no. of localities (vi) distinct genetic diversity
A1b	≥1.0% of global population size and ≥10 RU of a VU species	
A1c	≥0.1% of global population size and ≥5 RU of a species listed as CR/EN due only to past/current decline [= Red List A1, A2, A4 only]	
A1d	≥0.2% of global population size and ≥10 RU of a species listed as VU due only to past/current decline [= Red List A1, A2, A4 only]	
A1e	Effectively the entire population size of a CR/EN species	
A2 Threatened ecosystem types		
A2a	≥5% of global extent of a CR or EN ecosystem type	
A2b	≥10% of global extent of a VU ecosystem type	
B. Geographically restricted biodiversity		
B1. Individual geographically restricted species	≥10% of global population size and ≥10 RU of any species	(i) no. of mature individuals (ii) area of occupancy (iii) extent of suitable habitat (iv) range (v) no. of localities (vi) distinct genetic diversity
B2. Co-occurring geographically restricted species	≥1% of global population size of each of a number of restricted range species in a taxonomic group: ≥2 species or 0.02% of the total number of species in the taxonomic group, whichever is larger	
B3. Geographically restricted assemblages		
B3a	≥0.5% of global population size of each of a number of ecoregion-restricted species in a taxonomic group: ≥5 species or 10% of the species restricted to ecoregion, whichever is larger	(i) no. of mature individuals (ii) area of occupancy (iii) extent of suitable habitat (iv) range (v) no. of localities
B3b	≥5 RU of ≥5 bioregion-restricted species or ≥5 RU of 30% of the bioregion-restricted species known from the country, whichever is larger	
B3c	Site is part of the globally most important 5% of occupied habitat for ≥5 species in the taxonomic group	(i) relative density of mature individuals (ii) relative abundance of mature individuals
B4. Geographically restricted ecosystem types		
	≥20% of the global extent of an ecosystem type	
C. Ecological integrity		
	Site is one of ≤2 per ecoregion with wholly intact ecological communities	composition and abundance of species and interactions
D. Biological processes		
D1. Demographic aggregations		
D1a	≥1% of global population size of a species, over a season, and during ≥1 key stage in life cycle	no. of mature individuals
D1b	Site is among largest 10 aggregations of the species	no. of mature individuals
D2. Ecological refugia	≥10% of global population during periods of environmental stress	no. of mature individuals
D3. Recruitment sources	Produces propagules, larvae or juveniles maintaining ≥10% of global population size	no. of mature individuals
E. Irreplaceability through quantitative analysis		

Figure 1 KBA Criteria Table

The fact that occurrence data is the only working admissible data in KBA identification is crucial to keep in mind when considering the obfuscation within passages such as the following:

> "All forms of knowledge relevant to understanding biodiversity distribution, ecosystems, and landscapes in which KBAs will be delineated are appropriate to include in KBA assessments in Canada. This includes specifically Indigenous and local knowledge." (KBA Canada Coalition 2021: p8)

Two key interpretive techniques are useful when considering specific claims like those above. First, when it is understood that only occurrence data is eligible for consideration in KBA identification, then broad descriptions of kinds and sources of knowledge and knowledge consultation methods are revealed to be actually discussing occurrence data and not other kinds of data. So it is that phrases from the passage above such as, "all forms of knowledge relevant to understanding biodiversity distribution, ecosystems and landscapes," which hint at other forms of knowledge are really just talking about the occurrence data which might happen to exist thereof. Therefore, the knowledge of IPLC's – or any stakeholder for that matter – that is admissible in the KBA delineation process is occurrence data, while other historic and expansive dimensions of their knowledge remain inadmissible.

A second, related, interpretive technique can also help to evaluate KBA program potential to truly adopt or engage with IPLC environmental knowledge and value. This is to note the working dynamics of bringing priorities together, especially in terms of hierarchy. This is best achieved by paying attention to instrumental rationales. In the passage above – "all forms of knowledge....specifically Indigenous and Local Knowledge" are declared to have an instrumental role to a higher order motive: "understanding biodiversity distribution, ecosystems and landscapes." This assignment of IPLC values and priorities to an instrumental role serving the self-designated higher-order motives of environmental management is ubiquitous in scientific and gray literature, and is accordingly well-represented in the KBA Program core materials.

Additional passages such as the following from the Guidebook can be interpreted accordingly. First, the structural capacity to singularly consider occurrence data, does not prevent program language like the following which suggests otherwise.

> "It is recommended that KBA Proposers invite local tenure and resource management knowledge-holders (including social scientists and holders of ILK) to share their knowledge of local legal and customary tenure and resource management systems and other information relevant to the delineation of practical KBA boundaries." (IUCN 2020: p130)

This passage again hints at procurement of certain dimensions of IPLC input that the structural reality of the program cannot meaningfully consider. This report argues that any exchange with agencies or individuals outside of the KBA Canada Coalition (i.e. entities such as parks, Indigenous Protected or Conserved Areas or private lands) will, in the end, remain restricted to a uni-directional accumulation of occurrence data.

In the end, the KBA protocol for engaging knowledge like that stated above follows a protocol by which species occurrence data is computed according to criteria to delineate areas on a map. The following passage from the Guidelines Manual outlines the core motivation of such an exchange, clearly along the lines of an instrumental rationale.

> What is the role of Indigenous and Local Knowledge (ILK) in KBA identification and delineation? Integrating ILK can improve KBA identification and delineation by ensuring that these are informed by the best available data, including data on species abundance and distribution patterns. In many cases, a biodiversity element's range may fall wholly or mostly within the territory of an indigenous or local community; in others, ILK may need to be interpreted in the broader context of the species' or ecosystem's overall distribution. ILK can also play an important role in KBA delineation by ensuring that this is informed by the best available information on customary tenure and resource management systems. (IUCN 2020: p131)

Translated bluntly: 'IPLC knowledge can and should be solicited, procured and used to advance KBA success by our own metrics'. This text serves as a stark example of how intermittent transparent articulation of program function is. Yet it also illustrates how a keen awareness of instrumental rationales towards IPLC priorities is useful in revealing the programmatic barriers to engaging them more meaningfully.

Values and Biodiversity

Up to now, this report has generally restricted our focus to knowledge. However, when knowledge is operationalized to achieve the desirable, it does so through values (Graeber 2001). The Global and Canada's National KBA Standard envisions the achievement of is desirable ends through strict adherence to the specific, measurable, achievable, and realistic and criteria shown in Figure 1. These can be broken down into quantitatively identifiably site-specific rare or endangered species or ecosystems, geographically restricted species or ecosystems, rare site-specific ecosystems, rare or threatened site-specific life cycle stages of species, and irreplaceability. Broadly, this set of targeting priorities are explicitly chosen to operationalize the concepts of biodiversity for effective environmental management and protection. In other words, they are values. Therefore, when stepping toward the question – or more perilously, the assumption – of whether IPLC's somehow naturally share a supreme appraisal for mathematically defined diversity in their evaluation of environmental health, it is necessary to remember how specific and how recent the very concept of biodiversity is, even within the field of ecology. While the term biological diversity predates the usage of the contraction, "biodiversity", by a decade or more (Väliverronen 1998), it was the highly public and political formative processes in the late 1980s and 1990s which birthed the charismatic contraction, and which also sent it soaring to prominence and widely popular usage and favor (see Wilson and Peter 1988, United Nations 1992).

It is important to remember that the premier importance of 'biological diversity' to the persistence of life overall would have struck Rachel Carson, Aldo Leopold, Charles Darwin

himself as a novel argument, one which would require some walking through and doubtless a thorough introduction to terms like "issue attention cycle." Consequently, it should strike the reader as especially tenuous to declare or assume that the universal value of site-specific mathematical diversity of species and eco-types ought to find congruence within other distinct traditions of environmental value such as those held dear by many individuals in IPLC's.

Consequently, this reports takes the tack of declaring value for biodiversity to have particular cultural origins in a distinct value tradition. This casts the problem at hand then, as one of bringing value traditions into conversation with each other in a spirit of equity. The collision of value systems, even in such concrete domains environmental protection, is a notoriously complicated subject. A brief thought experiment will serve as an aid to gaining perspectives necessary to further envision incompatibilities between the global KBA standard and IPLC environmental values. This approach will 1) imagine a context for the interface of universal value and highly local traditional value for place; 2) explore the considerable divergence in perspectives between agents of a program and others affected by the program; and 3) visualize the encounter of such participants with a highly engineered and constrained path to engagement with a program rooted in universal value.

Thought Experiment: Global Architectural Heritage Appraisal

Imagine that an historic, unnamed city was selected for a prestigious internationally accredited architectural conservation appraisal. In this program, world renowned architects, architectural historians, urban designers and building arts experts would be gathered and charged with formulating a rubric for determining the essential value of this unnamed city's architectural holdings for global architectural heritage. This rubric would be designed such that the interior and exterior of individual houses and buildings and individual units and homes within these could be evaluated for their individual contribution to this overall essential value to humanity. From a determined selection of buildings deemed of qualifying character, an expanded sample of single-family apartments and homes would be subsequently nominated and approached by program representatives.

Imagine a resident of such an abode receiving a knock on the door. When answered, a program agent would explain the program much as it has been described above and inform the resident that their home had been selected for appraisal and, if determined eligible, they would receive a plaque signifying this determination and official registration within the city's official architectural heritage catalogue. However, the agent would then proceed to inform the resident of this more complicated program component: should their home receive such a designation, then for any committee-determined essential architectural characteristic observed to be missing, incomplete or concealed, a specific action plan would be developed for its restoration. For instance, if original plaster molding on exterior trim had been removed, a plan would be developed for its restoration. Carpeting may be determined to be concealing a feature and consequently this would be noted and plans for its removal would be drafted. Plans would be developed for the restoration of walls that had been removed or windows that had been replaced or enlarged. Importantly, the agent would not be free to offer any comment or information on the

implications or future of such plans whatsoever, but merely able to declare that such plans would be developed.

Stopping here, we can proceed to conjecture about the range of opinions and feelings that a resident would have about this program at this juncture. We might start by wondering what this resident, knowing precisely what they have been told and no more, would choose, if given the choice of agreeing or declining to participate in this program. On one hand, they may hold global architectural heritage in such high esteem that they would play any role and make any sacrifice towards ensuring the preservation of this common good. Or they may understand readily that this designation and any subsequent restoration labors would undoubtedly improve the market value and neighborhood prestige of their home at no cost to them. Therefore, in certain plausible cases, the program could align with both personal and social interests of residents. On the other hand, many residents may have personalized their homes over many years, perhaps in an aesthetic style they appreciated more than they would the classical, original style. Perhaps they are fond of their new large windows, yearned and planned for for years, which may be downsized in line with the original design. Sleek, simplistic molding may need to be replaced with that which is more ornate and imposing.

At this stage, such a resident could be argued to have very good cause for declining or agreeing to be a part of this program. However, what all residents would rightly deserve is more information than what has been provided, especially as it regards their decision-making powers within the process. For instance, the vague potentiality of the plans could cause understandable concerns for the resident. Would they be able to choose anything? From colors to materials and styles? If the planned work proceeded, when would it take place and how would the craftspeople work in a neat and timely fashion? The only evidence available to participants that their input was of interest would be the following: residents would be invited to participate in a survey whereby they would be requested to disclose any and all architectural features of interest to the program within their abode. Such features of interest would be disclosed in an extensive and small-print table.

Pausing and reflecting on the resident's consent decision serves as a useful device for the reader to evaluate such a hypothetical program. Yet, it is worth noting that the KBA standard requires no consent. At this moment KBA's are being delineated and proposed with no, or token, consent from on-the-ground stakeholders due to the program's self-identification as a purely information layer with zero management prescription. So, to tailor our analogy a bit more to the actuality of KBA vis-à-vis residents nearby to designated KBA’s, residents would most likely learn of the architectural conservation appraisal program and their home's role within it when they someday discovered the plaque affixed to their front door or nearby exterior wall. Hung together with highly engineered input solicitation, we can understand the low appeal such a program would have for a typical resident in this unnamed city.

Thought Experiment Summary

This thought experiment was designed to help the reader consider the emic, or insider, perspectives of IPLC's with very historic and developed senses of affinity and belonging inside, near and around the places that are to be designated KBA's. As indicated, the KBA standard guidelines do prescribe certain, structured interactions with stakeholders on the ground.

However, the pertinent question is how thoroughly do the prescribed interactions with IPLC's engage affected individuals and communities, and whether this is sufficient to declare meaningful reflection of IPLC environmental priorities and values, or even the possibility of such? It should be stated clearly that the pertinent matter is not the favorability of the KBA standard to participants or local stakeholders, but rather whether the KBA standard can rightly claim or promise to reflect and support IPCA environmental values and priorities in any intentional way. In the absence of any meaningful uptake mechanisms whereby stakeholder consent, impressions, or priorities were taken into consideration, our first thought experiment sharply illustrates how the alien nature of the KBA standard negates any such claim. By anchoring in peoples' homes, this thought experiment allows for the emergence of two important insights for our inquiry. First, it inserts the experience of the individual into the consideration of this report. It is perhaps a truism that social groups, Peoples, communities and even 'stake-holders' are composed of individuals, yet abstract program language about consultation, knowledge, dialogue, etc. does indeed obfuscate or discard the lived experience of individuals interfacing with scientific, government, and management schemes. This omission weakens claims and strategies about meaningful community engagement in a variety of contexts. Second, the concept of home is an essential environmental value in the Mi'kmaq worldview. As the following case will show, deeply felt and understood notions of home offer a good deal of commentary on the current roll-out of KBA's in the Mi'kmaq People's unceded traditional territory.

Case Application: KBA's and Mi'kma'ki

At this stage, the structural and logical context is now sufficiently established to report on our desktop review of KBA fit within Mi'kmaw environmental priorities for Mi'kma'ki. In other words, a reader of this report should understand full meaning and impact of the following informed null hypothesis: no meaningful compatibility between KBA's and Mi'kmaw environmental values will be observed. This section will begin with a discussion of the foundational values and guidelines of Mi'kmaw environmental value as well as how these line up with the priorities built into the KBA delineation and proposal process. Next, methods and results will be presented of a desktop review comparing lists of species known to be significant to Mi'kmaq People and species known to be targeted by proposed KBA's in Nova Scotia. Results confirm the null hypothesis. This section will close with a discussion of valid rhetorical and programmatic possibilities rooted in the biocultural orientation, findings of this report, and the environmental values and guidelines of Mi'kmaq People.

The Mi'kmaq People's Environmental Values and Guidelines

That the prior thought experiment was rooted in a common sense of home was no accident. As Trudy Sable and Bernie Francis take pains-taking efforts to show in The Language of the Land, Mi'kma'ki, the Mi'kmaw orientation toward, land, landscape, seascape, nature, and environment is one of being home. Sable and Francis argue that the fundamental declaration of Mi'kmaw identity and worldview is the knowledge *weji-sqalia'tiek*, meaning 'we sprouted here' (2012:p 17). This motivating and meaningful knowledge is itself the organizing principle of their

book, but it too has a core of its own, *wikuom* or home. “This perception of the landscape as home is at the heart of *weji-squelia’tiek*. There are still Mi’kmaq today who live this belief.” (2012:p 76) In combination with the power of sense of home, Sable and Francis go on to note that an understanding of *weji-squelia’tiek* is not complete without the motivations and obligations built into *kokmanaq* or “our relations” (2012:p 23). In combination, these foundational environmental values or orientation speak not just to an immutable sense of belonging, but also to claims of sovereignty as well as rooted particularity in Mi’kmaq Peoples dedication to Mi’kma’ki, as opposed to other lands. The global roots from which the KBA decision tree grows do not fit with the exclusive loyalty of the Mi’kmaq to their place. The locus of power for KBA species area delineation and proposal does not align with the Mi’kmaw sense of their sovereignty.

The tapestry of Mi’kmaw environmental values including *weji-squelia’tiek, wikuom and kokmanaq* can be further woven through with an additional number of enduring motivational concepts identified by the Unama’ki Institute of Natural Resources (UINR). In their report, Tan Telol’tik: How We Are Doing Now, the UINR declare that Mi’kmaw or L’nu (original name used by Mi’kmaq) language provides the ultimate instructions for how L’nu are to live on Wsitgamu (Earth).” (2020:p 8) Drawing from their discussions with Mi’kmaq elders, they list the following guiding principles for operationalizing local values for environmental care:

- *Sespite’tmnej* – Let’s take care;
- *Netukulimk* – the use of natural bounty provided by the creator for the self-support and well-being of the individual and the community;
- *Kepmej* – To take action towards Mi’kmaw way of life;
- *Wetaqnewsu’ti’k msit kisitaqn* – we are all connected to Creation;
- *Etuaptmumk* – two-eyed seeing and the gift of multiple perspectives;
- *Muk Maliswalok mijijuwajij* – Don’t underestimate our children (2020:p 9-10)

The UINR report put these native and enduring principles together for the concrete purposes of management planning and decision-making in a contemporary setting. Therefor, it can be accurately stated that these and other ideas are at-the-ready for engagement by environmental and natural area protection efforts that care to engage them and their subscribers. To belabor the point, to simply inquire from this community the known and verifiable locations of already-selected species – selected elsewhere and by non Mi’kmaq – circumvents an coherent, effective, and enduring system of environmental care. Since the KBA avoids this dimension entirely, there is little need to go into its compatibility with it. Still, an abbreviated comparison between the two approaches can be illustrative.

First, the above guiding principles circle around an action-orientation, an orientation inherent to Mi’kmaw language (Sable and Francis 2012). In combination with the obligations inherent to *kokmanaq*, a strong action imperative emerges to protect. Yet KBA does not require, solicit or allow for action from communities in Mi’kma’ki apart from the liberty to hand over locations of species they have not necessarily selected. Not only does this amount to a neglected resource of support, leadership and wisdom, it undercuts the sacred obligation to act.

Second, these values and guiding principles are anchored in an inherent value for the Mi’kmaw way of life. As should be clear by now, the design and motivation of the KBA

program flow out of another, non-Mi'kmaq, way of life. The enduring obligation to act to promote the Mi'kmaw way of life (*kepmej*) is similarly neglected by the structure of the KBA program. Should participants hand in admissible occurrence data of some sort, they would be furthering a way of life that is not Mi'kmaw, and doing so with so reason to believe they were also furthering their own.

This second incompatibility is perhaps best illustrated by a third, more bare ecological issue and that is the inalienable relations between the Mi'kmaq and their more-than-human relations (*kokmanaq*). This distinction is best illustrated as an incompatibility between Mi'kmaq esteem for synanthropic species – those that are tolerant of and prolific in human-defined environments – and their lack of consideration in the KBA delineation process. Before teasing this divergence out with our species list comparison, it will be best to pause with the concepts embedded within it. According to the values and principles laid out above there would be nothing ontologically inferior about landscapes species compositions defined by Mi'kmaq presence and livelihood. In fact, something like the opposite would be true where such landscapes would register Mi'kmaq reverence for relations rich with reciprocity, for the particular material manifestations of the special Mi'kmaw way of life, and as a special record of the past actions of ancestors. Synanthropic species are not usually rare and endangered or geographically restricted and so are not targeted for protection within KBA's. This principle of ecological value for rarity – one with certain resonance in mercantilist and economic logics – is so enshrined in the tradition of applied ecology as to be not just unassailable but undetectable. However, it is incongruous with Mi'kmaw environmental values and principles because it neglects obligations to synanthropic communities.

Study Methods

The author undertook an additional method to further evaluate the compatibilities between the KBA program and the environmental values and principles of the Mi'kmaq in more detail. We compared the compiled lists of species of interest for the KBA program with a generated list of species of significance to the Mi'kmaq. The first KBA list is a list of potential trigger species dated 02/08/2020 for all of Atlantic Canada. Each of these still required further processing according to the standard. This list was reduced by selecting those more clumped in space for which there is available and/or sufficient data. The second dataset includes a list of species that ultimately were utilized in the delineation of KBA's areas in Nova Scotia. In other words, these have been selected for protection within proposed KBA's in Mi'kma'ki dated 08/28/2020. The second list was generated from the compilation of several sources. This included two previously-conducted independent surveys of culturally significant biota for the Mi'kmaq (Unama'ki Institute of Natural Resources 2012, AMEC 2013). These species were all combined into a masters list of culturally significant species for the purposes of cross checking.

Results

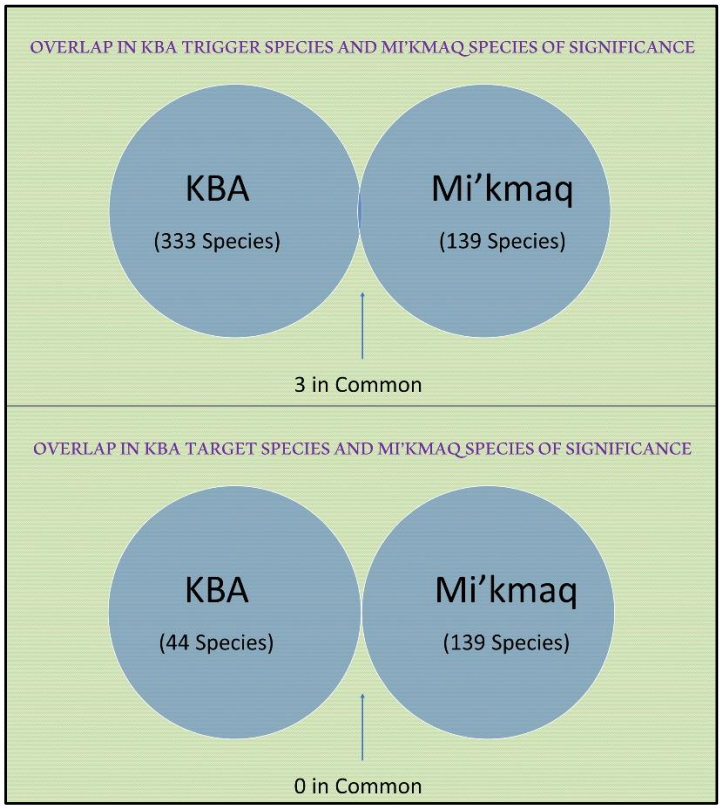

Figure 2 Results of cross-checking

Cross-checking the master list of Mi'kmaq species of known cultural significance and the potential trigger species list yielded three matches: Caribou, Eel and Ash (Fig 2). This result in and of itself is promising as it does reveal cultural sensitivities to rare and endangered species. Unfortunately, in the list of species which actually did trigger and factor into delineated KBA's, none of these species remained. This rendered the conclusive result in Figure 2, which shows that the original list of 333 species of combined plants and animals which warranted trigger element status was reduced to 44 which qualified for protection. This reduction removed the 3 species of common interest between Mi'kmaw and KBA priorities, caribou, eel and ash, thereby reducing the species in common count to zero.

Recommendations

Recommendations flowing from the findings in this report apply to two main areas of KBA related activities: communications and companion programming. The sources of authority, funding, and monitoring which make up the KBA program are geographically and institutionally diffuse. This includes the IUCN headquarters in Gland, Switzerland, Canada's KBA coalition in Toronto, the Wildlife Conservation Society Canada in Toronto and all partner parties in the coalition. For this reason, the following recommendations for communication and companion

programming will maintain generality such that any party, or even any individual, within the organizational map can successfully and readily adopt them.

1 Communications

1.1 Any affiliated party should cease and desist from communication – both public and internal – which claims or suggest that the KBA program has any intention or capability of meaningfully engaging with communities or parties outside of its organizational structure **for the purposes of KBA delineation and proposal**.

Though this is doubly important to adopt regarding communications with, or related to, First Peoples for obvious historical and political reasons, it is none the less equally right to adopt this policy towards civil society, local and national publics, and other disparate stakeholders. Solicitation and acceptance of species of interest occurrence data is simply not open enough of a function to claim, as is often done, that such parties external to the KBA coalition are being engaged in the process of KBA establishment.

Because such language can be challenging to identify or monitor, especially in regards to suggestion, inference versus explicit statements, Figure 3 is provided to demonstrate the various and manifold ways that it can occur. This is a position description for a postdoctoral associate to explore the very question central to this report.

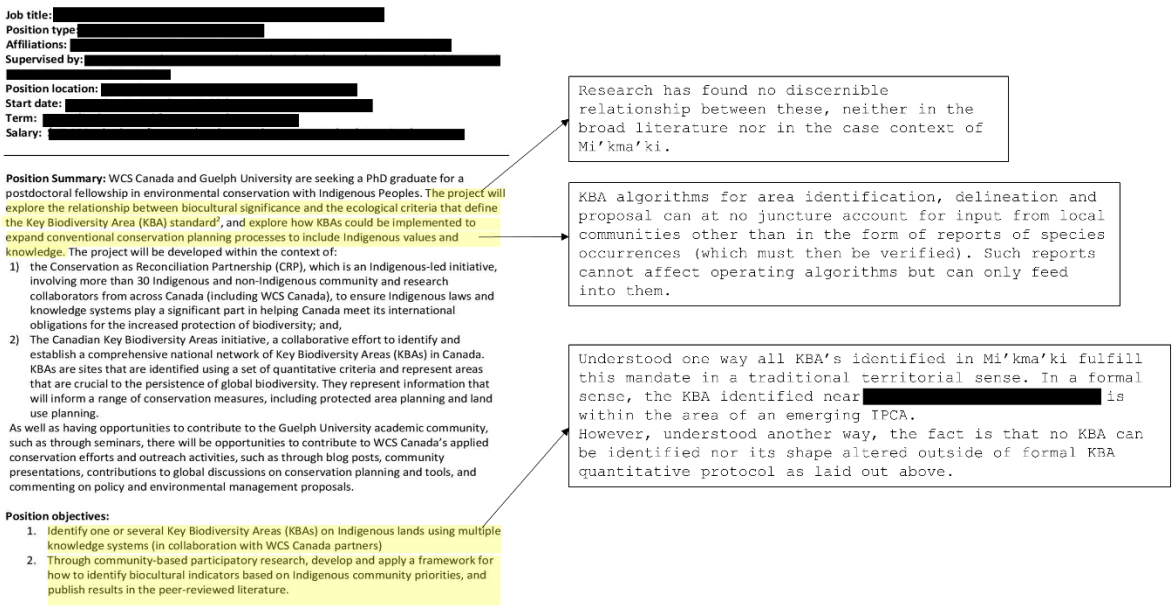

Figure 3 Sample language with misleading abstract text regarding KBA capability and structure

1.1.1 Containing Abstract and Aspirational Thinking

A theme to the inaccurate suggestions within is the overwhelming of structural fact with aspirational or otherwise abstract assertions. For this reason, the following sub-recommendation is put forward. Communications protocol for KBA implementing parties must maintain firm commitment to clarity and accuracy about the structure of the program in terms of its chronological work-flow, actual mediums of exchange with external parties in

the course of outreach and engagement, and adherence to priorities identified at the global rather than the local scale. Language or messaging which confuses these aspects must be avoided.

1.2 Proactive Measures

Recommendation 1.1 amounts to a call for ruling out certain language and kinds of messaging. Readers of this report may, however, be in pursuit of pro-active communication measures which emerge from the findings herein. The following inadequacies are in need of proactive communication and messaging contributions which can disentangle the effects of the persistent misleading language in the program communication record.

1.2.1 Clarifying and Highlighting KBA Aspirations

It is unavoidable that parties and individuals charged with establishing KBA's understand the merit of their activities as stemming from highly motivating and cherished aspirations. From a purely historical intellectual point of view, nothing could be more true that the fact that environmental science flows out of the environmental movement, a distinct cultural and values-rooted movement. However, good-faith messaging towards and regarding communities that likely do not similarly share the roots of these traditions in their particularities requires the methodical disentanglement and announcement of these strands of aspirations. In other words, the KBA program must be presented as it actually is and not as it might be in alternative scenarios. Therefor this report recommends the articulation and sharing – by individuals and institutions alike – of highly specific and realistic aspirations for the KBA program to serve the cause of reconciliation. If undertaken, this effort promises to be more effective if the following communication principles are adopted.

1.2.2 KBA Positionality Statement

In communications and messaging pertaining or directed to it is not advisable to profess that the KBA program is not a direct outcome of colonial traditions from western and northern Europe. Even in a hypothetical where environmental science is taken to be disaggregated from the environmental movement, science itself – in particular its claims to universal validity – is a direct offspring of European statecraft, military expansion and mercantilism. From this larger intellectual history of dubious moral standing have sprung numerous traditions of either neutral or invaluable status around the world. Consider the popularity and attraction of modern western medicine, media entertainment, cell phone technology and more. The KBA program stands here, should be understood here, as one candidate among thousands of European derived practices seeking support and favor from a global public, a public comprising countless local communities around the world. This report urges the pursuit of clear understanding and recognition of this realistic assessment of KBA positionality, and strongly recommend that all participating parties practice generating and disseminating such statements and messages.

1.2.3 *Articulation of Global Orientation*

As is inherent to programming originating in the United Nations, the IUCN, and other international governance and policy organizations, the KBA program mission is predicated on a theory of global interests and common humanity. Ultimately, this theory apportions certain degree of rights and entitlements to persons in the abstract, such as future generations and humanity as a whole. The validity of this theorization is a matter of substantial and long standing debate in political theory, but the plain fact is that the KBA program is adhered to a specific position within this debate, and this position is reflected in the computation protocol it employs. Although relatively complicated, it is extremely important that this conceptual 'positionality' is declared and made known both internally and externally in KBA related communications and messaging. For just as in the case of the Mi'kmaq, the rights and entitlements of the abstract humanity in their territory is not compatible with their well-developed priorities and code of stewardship in Mi'kma'ki, so it is likely to be the case in locales around the world.

1.3 Companion Programming Suggested Components

It is recommended that parties central to KBA regional operations like WCS Canada develop a robust communications and messaging strategy and protocol to alleviate the considerable risk of miscommunication. The components in this strategy might include, but are not limited to social media protocol, training modules, community engagement protocol, and web editing strategy.

2 Companion Programming

Should KBA implementing parties wish to pursue aspirations towards reconciliation, indigenous-led conservation, biocultural conservation and other such outcomes, it is our concerted opinion that KBA cannot do it. Rather, companion programming should be designed and implemented towards these ends. The elegance of KBA is likely to be its singular and immutable nature. Were this acknowledged, declared and embraced its usefulness and power within a larger, more holistic strategy is not hard to imagine. What follows are some rough outlines for programming for illustration purposes only. These and any other potential initiatives would need review, validation, calibration and wholesale revision at the local level in order to have any meaningful impact. Furthermore, these should be understood as eligible variably for implementation prior to, in simultaneity with and in succession of the implementation of KBA delineation and proposal, and in some cases all three.

Though hypothetical in the case of KBA programs like Canada's which have already made significant headway, there are major preliminary steps which could put the KBA standard on credible footing vis-à-vis IPLC interests and values. The rough guidelines for such preparatory work can fortunately be drawn from the succinct and potent Declaration of Belem, a declaration of prescriptions for environmental programming and governance to align with the lifeways and priorities of IPLC's. The future declarations drawn from here outline the political, epistemological, and ecological realities which programs like KBA would need to embrace to adopt a biocultural orientation, or establish the most basic capacity for compatibility with IPLC environmental priorities.

2.1 IPLC Authority and Expertise

In adherence to the Declaration of Belem (1988) demand for "mechanisms … by which indigenous specialists are recognized as proper authorities and are consulted in all programs affecting them, their resources and their environment," KBA program implementing parties and staff could recognize that the mere act of having designs – in the form of polygons, prioritization of life forms, protections goals – on traditional territory of IPLC's is of concern to local residents and as such should not be occurring without express notification. It is the opinion of this report that KBA as it is now, an entirely biostatistical expression of the values of applied ecology – could readily be accepted by IPLC's for what it is. However, communication at such preliminary stage should adhere to the parameters identified above. Furthermore, going beyond notification would of course be necessary. This stage would also present a juncture for discovering the designs IPLC's might have on the infrastructure, data, and capacity held by the KBA coalition.

2.2 IPLC Heritage of Environmental Quality (including Biodiversity)

Drawing on the Belem declaration that "native peoples have been stewards of 99 percent of the world's genetic resources," KBA programs could adopt, in both language, framework and protocol the recognition that the ecological well-being humanity is in a position to care for exists thanks to millennia of traditional management and care. Going beyond the fact that this is a more factually accurate context for understanding the worlds persistent biodiversity than the alternative (Boivin et al. 2016, Ellis et al. 2021), it is also clearly a superior mindset with which to engage IPLC's for a number of reason. Returning to the context of the Mi'kmaq in Mi'kma'ki for illustration, this epistemology, or way of knowing what is and what is not environmental quality resonates with Mi'kmaq pride in the material record of their way of life past and present. It puts in relief – instead of obfuscating – the fact that the epistemology which gave rise to programs like KBA is alien to all of the world's locales and is in need of amendment by local wisdom. So, it establishes a more appropriate tenor for whatever exchange follows and it remains true to the declaration above by centering authority and credibility where it has been earned.

2.3 Irreplaceability of IPLC Involvement

Finally, by recognizing the validity of these first two declarations, a new ecological understanding is generated by which it is clear that IPLC sovereignty over, involvement in and hands-on care for prized ecological areas in their traditional territory is an essential factor in their continued health, well-being, and sustainability. Again, this recognition would serve a powerful role if reflected in program language, frameworks, and protocol. In synergy with the others however, this declaration is forward-looking and promises important prescriptions and considerations for KBA implementing parties who intend to engage in good faith with IPLC's. The following are examples of approaches which this recognition naturally puts forward.

- Re-perform delineation with all species identified by both KBA protocol, community identification
- Combine KBA's with KBCA's (Key Biocultural Areas);

and biocultural significance investigations;

- Conduct community-led workshops to reengineer prioritization and delineation protocol;
- Give cultural keystone species premier weight in area formulation;
- Explore for combined KBA and KBCA trigger assemblages

Though intriguing and clearly rich with innovative possibilities, it must be stated outright that the programmatic ideas flowing from the above recognitions will continue to lack the irreplaceable insight of Indigenous leadership until actual communities are engaged. What is key is process. To the extent that the biocultural perspective can calibrate the KBA program in Canada and elsewhere, it automatically and vehemently suggests an alternative process for concurrent, persistent, rigorous and good-faith community engagement. Our summary section will reemphasize the conceptual, communication and programmatic alternatives needed.

Summary

This report has demonstrated through analysis, analogy and case study that no meaningful (non-random) compatibility exists between the Key Biodiversity Area proposal process – as it now exists and is being implemented globally and in Canada – and the priorities of Indigenous Peoples and Local Communities. This finding is supported by a number of proofs. First, this report establishes that the very structure of exchange allowed between the KBA program and communities outside of it – including IPLC's – is not sufficiently open to support any claim of engagement. While this is embodied by the fact that the KBA program, by default, runs almost exclusively on occurrence data of already-selected species, it is further cemented by the instrumental rationale toward IPLC's which pervades KBA program language and protocol. Furthermore, by stepping away from a limited view of 'knowledge' exchange, this report demonstrates the necessity and feasibility of engaging values. By doing so, the limited nature of KBA exchange with all kinds of local communities is further revealed. A brief thought experiment delves into the tissue of perception between a program much like KBA and those outside it who are affected by it. Through this exercise the adoption of an emic, or insider, point of view shows a bit more precisely how universal value is perceived within the intimacy of personal and family life. That this thought experiment is rooted in notions of home proves to be a very relevant introduction to the context of Mi'kma'ki, where Mi'kmaq People have an enduring understanding of being at home in environmental well-being. Our desktop review of KBA proposal in the case region of Mi'kma'ki, the traditional territory of the Mi'kmaq People known in the English as Nova Scotia, revealed a stark lack of compatibility between the KBA roll-out and known environmental priorities of Mi'kmaq communities in the area. While this report finds this incompatibility to be especially stark at the level of tradition and values, it is no less bluntly demonstrated by the total lack of common interest between KBA targeted species and those of known significance to the Mi'kmaq People.

In summary, this report finds that there should be no confusion or uncertainty as to whether the Global KBA Standard or its implementation in Canada enjoy meaningful compatibility with IPLC environmental priorities, such as those held by the Mi'kmaq in Mi'kma'ki: they do not. This report concludes with immediate recommendations for communication strategy and protocol necessary to halt miscommunication around this subject. These fell into the general categories of restrictions and pro-active approaches. The author took a further step to support parties and/or persons involved in the implementation of the Global KBA Standard - including the KBA Canada Coalition - who would choose to actually engage IPLC's in good faith. In a section devoted to envisioning companion programming for the KBA process, this report outlined the conceptual and processual requirements which would define and give rise to suitable companion programming to KBA implementation.

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