

January 18, 2018

By email: ENV.minister@gov.bc.ca

The Honourable George Heyman
Minister of Environment and Climate Change Strategy
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Room 112, Legislature Buildings
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Dear Minister:

Please find enclosed a submission to your Professional Reliance Review. The submission summarizes observations on professional reliance from our perspective as karst scientists and primarily in relation to forestry.

The “functional architecture” of *Forest and Range Practices Act* (FRPA) was to include three “pillars” – 1) Government Objectives; 2) Plan and Practice Requirements in the Act and regulations; and 3) Compliance and Enforcement – plus two supporting “foundations”: 1) Effectiveness Evaluations; and 2) Professional Reliance (BC Ministry of Forests, 2004, p. 19).

Karst is among the resource features to be managed under the FRPA regime. In our view, BC’s karst resources have not fared well under FRPA. The professional reliance foundation has proven especially problematic.

Our submission explains why we have reached these conclusions and includes suggestions for some possible partial remedies.

Yours sincerely,

ORIGINAL SIGNED BY

Carolyn Ramsey, PhD
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cc: The Honourable Doug Donaldson
The Honourable Scott Fraser
The Honourable Claire Trevena

Submission to the Professional Reliance Review

Prepared by Carolyn Ramsey, PhD
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Submitted January 18, 2018

Introduction

The purpose of this submission is to provide our observations on professional reliance from our perspective as karst scientists and primarily in relation to forestry.

Karst, which occurs in all regions of the province, is a distinct type of topography that develops when water dissolves relatively soluble bedrock. The IUCN (1997, p. 2) defines karst as “an integrated, yet dynamic, system of landforms, life, energy, water, gases, soils and bedrock.” The *Karst Inventory Standards and Vulnerability Assessment Procedures for British Columbia* states that:

“A karst ecosystem is defined as a functional unit consisting of all living and non-living physical and chemical elements of the karst environment that are linked through nutrient cycling and energy flow.” (Resources Information Standards Committee, 2003, p. 3)

Karst is recognized as a special type of subterranean wetland by the Ramsar Convention on Wetlands, to which Canada is a signatory (see Ramsar Convention on Wetlands, 1996). The peculiar and distinctive structure and hydrology of karst are factors that make karst ecosystems among the most sensitive on earth (see, for example, Parise (2015); IUCN (1997)).

The scientific study of karst, or some aspect of karst, is called “karstology.” In some parts of the world it is possible to earn an advanced degree in karst science. Today, karstology is considered to be a highly-specialized discipline in its own right. Although some karstologists may earn degrees through academic departments such as geography, biology, earth sciences, chemistry or the humanities, to be called “karstologists” the main focus of their studies must be karst. If karst is involved, but incidental, to their research (as might be the case for, say, bat researchers, archaeologists, or geologists), such researchers are not properly termed “karstologists” because they lack comprehensive theoretical knowledge of karst and/or its management issues.

(.../2)

Karst resource management under the *Forest and Range Practices Act (FRPA)*

When BC transitioned to the results-based *Forest and Range Practices Act (FRPA)* regulatory model in 2004, karst was placed among the resource features that constitute one of the 11 forest resource values to be managed under FRPA (see, for example, Bradford et al., 2005).

The functional architecture of the FRPA regulatory model consisted of three “pillars” and two supporting “foundations.” The three pillars included:

1. Government Objectives;
2. Plan and Practice Requirements in the Act and regulations; and
3. Compliance and Enforcement.

The three pillars were to rest on the following two supporting foundations:

1. Effectiveness Evaluations, and
2. Professional Reliance (see British Columbia Ministry of Forests, 2004, pp. 19–29).

Under the FRPA regime, the results-based *Act* and regulations were also to rely on non-legal supports, including “a science-based approach to environmental management to ensure sustainability, accountability and responsibility” (BC Ministry of Forests, 2004, p. 8).

Applying the three pillars and two supporting foundations to sustainable management of karst resources in a forestry context in BC has been problematic and largely unsuccessful (Griffiths, 2016).

The Government Objectives pillar

The province has one specific requirement for karst in a forestry context within the Government Objectives pillar.

Haida Gwaii is the only geographical region of BC with a specific government objective for managing karst resources in relation to forestry. Karst features are listed as Class 2 Haida Traditional Heritage Features (HTHFs) in Schedule 2 of the 2010 *Haida Gwaii Land Use Objectives Order (HGLUOO)*. In accordance with s.5(5) of the HGLUOO and subject to very limited exceptions, Class 2 HTHFs are to be protected by maintaining a reserve zone with an average width equal to 100 m, measured from the edge of the feature. Forest licensees in Haida Gwaii must address the HGLUOO in their Forest Stewardship Plan (FSP) by writing results and strategies to meet the legal objectives.

Outside of Haida Gwaii there is no legal requirement for forest licensees to write results and strategies specifically for karst in their FSPs. Therefore, the Government Objectives pillar does not presently apply to karst resources in a forestry context outside of Haida Gwaii.

The Plan and Practice Requirements in the Act and regulations pillar

The only karst-specific Plan and Practices FRPA pillar component is the legislated practices requirement of section 70(1) of the Forest Planning and Practices Regulation (FPPR). This regulation subsection stipulates that resource features must not be damaged or rendered ineffective. FPPR s.70(1) comes into play when a surface or subsurface karst system element is established as a “resource feature” in a Government Actions Regulation (GAR) Order.

In principle, karst GAR Orders designate categories of karst features for protection as resource features and trigger the FPPR s.70(1) damage prohibition. In practice, however, these features designated for protection by karst GAR Orders are often damaged by the planned forestry activities. The causes can often be traced to recommendations made by underqualified or unqualified registered professionals engaged by other registered professionals acting on behalf of the regulated party (e.g., the forest licensee). Hence, although there is a specific legislated practices requirement within the Plan and Practice Requirements pillar, for certain categories of karst features, the effectiveness of this requirement has been hindered by reliance on registered professionals who are not suitably qualified.

Six natural resource districts in BC have karst GAR Orders. These districts are: 1) Haida Gwaii (*Order to Identify Karst Resource Features for the Queen Charlotte Islands Forest District*, 2006); 2) Campbell River (*Order to Identify Karst Resource Features for the Campbell River Forest District*, 2007); 3) North Island – Central Coast (*Order to Identify Karst Resource Features for the North Island – Central Coast Forest District*, 2007); 4) Sunshine Coast (*Order to Identify Karst Resource Features for the Sunshine Coast Forest District*, 2010); 5) South Island (*Resource Feature Order*, 2009); and 6) Chilliwack (*Order to Identify Karst Resource Features in the Chilliwack Forest District*, 2010).

Outside of these six natural resource districts, the Plan and Practice Requirements pillar does not apply to karst resources. Within the districts that *do* have karst GAR Orders, the effect of the FPPR s.70(1) practices requirement (not damaging or rendering ineffective karst resource features) is further limited to: a) the specific categories of resource features identified in the karst GAR Order; and b) damage resulting from primary forestry activities.

Karst-specific guidance documents

The provincial government developed and published karst-specific guidance that can assist forest licensees in meeting plan and practice requirements for karst resources. This non-statutory guidance was developed over a period of years by government officials, karst scientists

and other karst experts. Industry provided operational input and reviewed the products. The published guidance for managing karst includes: a) methodological karst inventory and assessment standards, and b) best practice guidelines aimed at protecting karst resources.

Within the published guidance, the provincial government recommended criteria for training qualifications for persons undertaking karst field assessments. A key qualification is successful completion of the three-day Resources Information Standards Committee (RISC) Karst Field Assessments Training Course (see the *Karst Management Handbook for British Columbia*, BC Ministry of Forests, 2003, p. 15). Additional provincial recommendations for qualifications and training are provided in the *Karst Inventory Standards and Vulnerability Assessment Procedures for British Columbia* (see Resources Information Standards Committee, 2003, p. 69) and *A Preliminary Discussion of Karst Inventory Systems and Principles for British Columbia* (Stokes & Griffiths, 2000).

Having guidance documents is not synonymous with *using* the available guidance or applying it to natural resource management in the field. The provincial karst standards and guidelines are not consistently implemented. While the *Karst Inventory Standards and Vulnerability Assessment Procedures for British Columbia* and the *Karst Management Handbook for British Columbia* are often cited in karst field assessment reports, a recent Forest Practices Board annual report (Forest Practices Board, 2014, p. 21) found that, “the guidelines set out in two karst management guidance documents - including the best management practices - were usually not followed.” The same report “noted inconsistency with karst assessments and management strategies” (Forest Practices Board, 2014, p. 21).

The Compliance and Enforcement pillar

The Compliance and Enforcement (C&E) pillar has not served the public interest well with respect to karst resources in a forestry context. Examples of enforcement actions are practically nonexistent for karst, but not because complaints about karst management are not received. By the provincial government's own admission, C&E personnel lack the capacity to conduct meaningful investigations related to karst.

The Effectiveness Evaluation foundation

To date, the Effectiveness Evaluation foundation has not served British Columbians for karst. Karst monitoring under the Forest and Range Evaluation Program (FREP) has been under development since 2003. As of the date of this submission, a FREP karst monitoring protocol has yet to be finalized (see, for example, Forest Practices Board, 2017b, p. 12).

In short, the general effectiveness of FRPA architectural components with respect to karst is disappointing. The Government Objectives pillar may be effective, but is only applicable to karst features in Haida Gwaii. The effectiveness of the Plan and Practices pillar is limited to the

six districts in BC with karst GAR orders, and is applicable only to certain categories of karst system elements and potential damage caused to them by primary forestry activities. Since the transition to the FRPA regulatory model was completed, neither the Compliance and Enforcement pillar, nor the Effectiveness Evaluation foundation have consistently ensured sustainable management of BC's karst resources in a forestry context.

The remaining FRPA foundation - Professional Reliance – is the subject of your review.

The Professional Reliance foundation

One of the parts of BC's karst management guidance documents that is "usually not followed" is the recommended minimum training qualification for conducting karst field assessments. This is problematic because registered professionals typically lack an adequate background in karst science theory or the applied field of karst management. Registered professionals are therefore not automatically competent to undertake such work without satisfying the other recommended karst-specific qualification requirements pertaining to higher education and training. Moreover, most haven't taken the recommended three-day RISC Karst Field Assessments Training Course.

Registered professionals must adhere to strict ethical codes, uphold professional principles, and possess the requisite expertise to carry out work they may undertake (Professional Reliance Task Force, 2006, p. 6). It is often suggested that the public may have greater confidence in work done by members of professional associations because: a) members are expected to abide by certain ethics and standards; and b) associations are expected to provide oversight:

"Like morality, professionalism is a belief-system as much as a set of rules. Nonetheless, the public can only be assured that professionalism will prevail when a profession has the ability to exercise discipline on its members. This is the safety-net for professional reliance." (British Columbia Ministry of Forests, 2004, p. 36; see also Gelowitz, 2016, p. 7)

The statement that "the public can only be assured that professionalism will prevail when a profession has the ability to exercise discipline on its members" [underlining is ours] is not true. Unregulated professionals hired or otherwise engaged by industry or government *can* be held accountable for their work through employment and business contract clauses.

Do professional associations possess the *will* to consistently and effectively oversee members in relation to karst? Presumably the answer to this question should be "yes." To the best of our knowledge and experience, however, the professional associations have not enforced professional codes of ethics or conducted disciplinary processes for unqualified or under-

qualified members practicing in the karst field. No registered professional has been seen to be held to account for poor karst management outcomes we have observed in the field.

Do professional associations possess the *ability* to exercise effective oversight of members who undertake karst work? Professional association bylaws typically prohibit members from practicing in areas for which they are not qualified by reason of knowledge, experience and training. We maintain that neither the registered professionals nor their associations possess sufficient karst science-specific knowledge to accurately and effectively assess whether members are acting in accordance with the bylaws. We have seen, for example, numerous instances where registered professionals were:

- 1) apparently unaware of, or unable to describe the difference between allogenic and autogenic recharge in karst;
- 2) laboring under the misconception that all dolines (karstic sinkholes) are products of collapse;
- 3) prescribing management measures for dolines on the mistaken assumption that collapse is the primary management concern;
- 4) classifying dolines as “open-” or “closed-” sinkholes, based on whether or not they have atmospheric openings in the bottoms (a factor which is largely irrelevant in terms of assessing the significance, sensitivity or hydrological function of these features);
- 5) attempting to apply karst vulnerability ratings to discrete karst features (when in fact they are applied to the broad karst landscape);
- 6) claiming that there are no recommended qualifications for persons undertaking karst work;
- 7) failing to correctly distinguish between karstologists, speleologists, cavers and spelunkers.

These are all examples of errors in basic karst science. Persons qualified to do karst work in BC should not be making such errors.

Scientific knowledge was intended to inform and augment the FRPA foundations (BC Ministry of Forests, 2004, p. 8). We have observed numerous examples of alternative management actions for karst recommended and/or implemented by registered professionals that are not supportable by karst science rationales. Hence the “science” support originally built into the 2004 FRPA regulatory model has been effectively neutralized with respect to karst under professional reliance.

The value of oversight and the disciplinary role of professional associations is often emphasized as the rationale for warranting public trust. Though the intended message or inference seems to be that all registered professionals *merit* greater public trust than unregulated

professionals because the associations provide oversight, it could also be construed as tacit acknowledgement that at least some members *require* such oversight to ensure high standards of professional work and conduct are upheld.

If “professionalism, like morality, is a belief-system as much as a set of rules,” (BC Ministry of Forests, 2004, p. 36), then members of professional associations have no monopoly on probity or adherence to professional standards and ethics. The fact that many unregulated professionals consistently adhere to standards of professional ethics, integrity, and standards of work equal to those espoused by professional associations – and manage to do so *without* professional association oversight – attests to this.

We accept that many registered professionals believe they are doing their best to serve the public interest and comply with association bylaws when they undertake karst-related work. We are not convinced that they are succeeding with either task. We maintain that it is inappropriate, ineffectual, and unreasonable for government to expect the professional associations to review or enforce sanctions for karst transgressions when they lack sufficient knowledge or expertise in the karst field (Ramsey & Griffiths, 2010). In part, this is because professional associations, like other organizations invested with the task of upholding public trust are not immune to institutional corruption. “Corruption” is a strong word with unpleasant connotations, but in this particular context such connotations do not necessarily apply. Lessig (2013, p. 2) provides the following definition for the term “institutional corruption”:

“Institutional corruption is manifest when there is a systemic and strategic influence which is legal, or even currently ethical, that undermines the institution’s effectiveness by diverting it from its purpose or weakening its ability to achieve its purpose, including, to the extent relevant to its purpose, weakening either the public’s trust in that institution or the institution’s inherent trustworthiness.”

Lessig points out that this definition is value-neutral in the sense that the consequences of a deviation (or “corruption”) of an institution’s original purpose may or may not be harmful, and that the impetus for such deviations may be legal and/or ethical. He also notes that such deviations may be contingent upon circumstance – for example,

“...the institution might sometimes deviate from its purpose, due to the corrupting influence, and sometimes not. Consider ... a judiciary that had been corrupted by ideology: many cases will not involve ideological questions and for those, there would be no deviation. But for cases that do involve ideology, there would be deviation relative to the ideals of a judiciary.” Lessig (2013, p. 3)

We suggest that this example may be relevant with respect to professional reliance and karst. Professional association oversight may be effective for questions not involving karst.

Where karst is involved, however, its intended purpose can all too easily be compromised because associations are incapable of achieving their original oversight purpose.

Consistent with Lessig's (2013, p. 3) definition, we maintain that, with respect to managing karst, decreeing that a "qualified person" shall be synonymous with a "registered professional" constitutes a "systemic and strategic influence... which undermines the institution's effectiveness by diverting it from its purpose or weakening its ability to achieve its purpose, including, to the extent relevant to its purpose, weakening either the public's trust in that institution or the institution's inherent trustworthiness." In other words, such a decree is a systemic influence for institutional corruption of BC's professional associations. Based on our observations and experience, we believe that the net effect is not beneficial. Where karst resources are concerned, the professional reliance model is heavily subsidized by poor results. Hence by extension, such a decree also weakens the ability of FRPA to achieve its stated purpose:

"FRPA standards and requirements ensure high levels of protection for resource values while streamlining planning processes for both government and industry." (Province of British Columbia, n.d.)

Entrenching the requirement to use only registered professionals in natural resource legislation creates a sort of professional caste system, with registered professionals at the apex and all others ranged somewhere lower in the hierarchy. In our view, such a system: a) undermines the value of specialized expertise in resources such as karst; and b) limits employment opportunities for subject matter experts because association membership, rather than subject matter expertise becomes the priority hiring criterion. The net effect may be to *exclude* qualified (albeit unregulated) karst resource professionals from gainful employment in their field of specialization while providing an incentive for organizations to hire unqualified or underqualified registered professionals. Our observations suggest that this has actually been occurring in BC for some time.

We suggest that a further effect has been to discourage specialization in fields such as karstology because employment prospects for such specialists are dim. By extension, given that specialists are the ones most abreast of current research in their fields, the effect, with respect to karst at least, has been to curtail management rationales supported by the best available karst science while practices that are not karst science-supported tend to proliferate, a recent example being "high-stumping" of significant surface karst features (Griffiths, 2016).

One might argue that a logical solution to this problem is for persons with karst expertise to join one of the five professional associations listed in your Terms of Reference.¹ However, none of the professional associations is a good fit for karst scientists and other karst specialists. Membership would confer no real benefits to karst specialists since, as noted above, the associations lack the capacity to provide meaningful oversight. At the same time, karst specialists would incur significant costs to maintain their association memberships.

We suggest that equating “qualified persons” with a “registered professionals” creates a potential inducement/moral hazard for registered professionals acting as contracted professional consultants to practice outside the scope of their expertise.

All things considered, we do not believe the utility of professional reliance outweighs its negative – albeit possibly unintended - consequences for BC’s karst resources.

Our recommendations

The *Glossary of Forestry Terms in British Columbia* defines professional reliance as “Reliance on the judgement of appropriate professionals who are authorized and qualified to provide a service” (BC Ministry of Forests and Range, 2008, p. 78). No mention is made of registered professionals in this definition. We question whether it is necessary to equate “qualified persons” with “registered professionals” in such a definition.

In our view, the qualifications and experience of unregulated professionals whose areas of specialization may not be good fits with the existing professional associations can be verified using standard due diligence and good hiring practices. Therefore, our chief recommendation is to avoid restricting the terms "qualified persons" or "qualified professionals" to mean only those individuals who are registered professionals, as this excludes making use of qualified, albeit unregulated, karst resource professionals.

Qualifications and competency for karst work can be authenticated and compared against the recommended minimum provincial government standards. The provincial government can be charged with maintaining a roster of persons with verified qualifications for the benefit of those planning to hire or otherwise engage a person to conduct karst work.

¹ I.e., the BC Institute of Agrologists, the Applied Science Technologists & Technicians of BC, the College of Applied Biology, the Engineers and Geoscientists of BC (formerly APEGBC), and the Association of BC Forest Professionals (source: <https://engage.gov.bc.ca/professionalliance/terms-of-reference/> [Accessed 18 December 2017])

Meanwhile, the expectations of standards of conduct and limitations of the scope of practice for a given association are clearly defined in professional bylaws. The BC Ministry of Forests (2004, p.33) notes that,

“Guidance as to what professionals are required for any given task or set of tasks may be found in the definitions and rights of practice in the legislation governing resource professionals in BC.”

Our additional recommendation to restore and maintain public trust is to return to the provincial government the ability to review and approve activity plans for managing karst in forestry, in the same manner that this is required in the oil and gas sector (BCOGC, 2015). We note that a recent Forest Practices Board report recommends that “district managers’ authority to exercise discretion over the issuance of cutting permits and road permits in limited circumstances where proposed activities put local environmental and community values at risk” should be strengthened (see “Letter of Introduction” preface in Forest Practices Board, 2017a.). For this recommendation to work, however, the provincial government needs to restore and maintain its own capacity with respect to karst.

Government oversight is needed with respect to karst resources because of the inherent conflict of interest built into the professional reliance model – specifically, that contracted professional consultants and those who engage them, irrespective of whether they are registered or not, will always be to some extent motivated by profit. We have seen examples of organizations who seem to believe that a “qualified person” with respect to karst work is any individual who tells them exactly what they want to hear - and hire accordingly. Professional association membership is sometimes used to bolster an organization’s claims that poor management outcomes for karst are actually acceptable - simply because the work was done by a registered professional.

We maintain that this is not how the professional reliance foundation was intended to work. It is not consistent with how it was marketed to the public at the time FRPA was introduced.

Conclusion

Our submission summarizes our observations on the functioning of the FRPA professional reliance foundation, with respect to managing karst resources primarily in a forestry context. We recommend 1) not restricting the terms "qualified persons" or "qualified professionals" to mean only those persons who are registered professionals; and 2) restoring provincial government oversight to the management of karst resources.

It has been suggested that one of the main benefits of the professional reliance model is cost savings (Fraser, 2017). However, there is also a significant cost to the public in maintaining

the model based on utilization of registered professionals exclusively. That cost comes in the form of damaged and degraded karst resources traceable to professional reliance failures. In our view, this is an example of false economy that is not being properly accounted for.

With respect to ensuring sustainable management of BC's karst resources, professional reliance has failed to deliver as promised. We believe the public expects – and deserves – a much higher standard of management for its karst resources.

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