Summary
This article shares some of the experiences of an integrative science team based at Cape Breton University, Canada. Integrative science is defined as “bringing together Indigenous and Western scientific knowledge and ways of knowing” and the team includes Mi’kmaq Elders and educators, Cheryl Bartlett and her Research Associates. Together we worked to rekindle the Mi’kmaq Sky Story, Muin and the Seven Hunters, to produce a DVD of the story as well as a children’s book, and then to share it with people throughout Canada and the world. We offer insights into the manner in which night sky stories engender interconnectiveness¹ and interdependability² through their cultural, scientific and ecological teachings and so help to revitalise the culture and the individual by feeding all aspects of the human experience (spiritual, emotional, physical and cognitional). We explore the concept of storywork³, with emphasis on the relationship between storyteller and listener as a story is told, as well as considering the multi-layered aspect of Indigenous stories.

Introduction
From twilight to dawn, the night sky embraces us all, whether we are conscious of it or not. Throughout the world, each culture has its own night sky stories — stories that have woven the fabric of that culture, just as the culture has itself woven the fabric of the specific story. This article will look at some of the ways in which we, the integrative science team at Cape Breton University in Sydney, Nova Scotia, Canada, began working with the Mi’kmaq night sky story Muin and the Seven Hunters for the International Year of Astronomy 2009, and how such night sky stories can make the essential interconnectiveness clear as well as perpetually nourishing and revitalising the Mi’kmaq culture and people. The Mi’kmaq are the Indigenous (Aboriginal) Peoples of Atlantic Canada; their ancestral territory is known as Mi’kma’ki and includes the present day Canadian provinces of Nova Scotia, Prince Edward Island, most of New Brunswick, the Gaspe of Quebec, and southwest Newfoundland, as well as parts of the State of Maine in the United States of America.

Muin and the Seven Hunters
The integrative science research team includes Mi’kmaq Elders and educators, Canada Research Chair Cheryl Bartlett, students and research associates. Integrative science is defined as “bringing together Indigenous and Western scientific knowledge and ways of knowing”. It uses pioneering, praxis-based research following integrative, action and participatory methodologies within a co-learning journey with, by, and for Aboriginal peoples and communities (Bartlett, 2005; Bartlett et al., 2010; Comeau et al., 2005; Hatcher et al., 2009; Iwama et al., in press). It was conceived in the mid-1990s in collaboration with key Mi’kmaq individuals to bring radical innovation into the educational system to begin to address the shocking under-participation by Aboriginal young people in university science programmes and thus also in careers that require such an education. Mi’kmaq Elder Albert Marshall has introduced the guiding principle of “Two-eyed Seeing”, which emphasises learning to see from one eye with strengths in Indigenous knowledge and ways, and learning to see from the other eye with strengths in Eurocentric (or Western, or mainstream)
knowledge and ways. Elder Albert stresses that we must learn to use these two eyes together, for the benefit of all.

The Canadian International Year of Astronomy 2009 (IYA2009) National Steering Committee, chaired by Jim Hesser (Director, Dominion Astrophysical Observatory, Herzberg Institute of Astrophysics, National Research Council of Canada, Canada), made a special request to the integrative science team: to form the Canadian Aboriginal Working Group for IYA2009 to help celebrate Aboriginal knowledge of astronomy alongside mainstream science. Mi’kmaq Elders gave their approval and endorsement for the integrative science team to proceed with the idea to highlight a Mi'kmaq night sky story as a contribution to IYA2009 celebrations in Canada. Muin and the Seven Hunters was the immediate choice as it is the story with which Elder Lilian Marshall from the Mi'kmaq community of Potlotek (Chapel Island) had been working for over 20 years. It is a rich, vibrant story that links the annual cycle of natural, seasonal events as observed by the Mi’kmaq with the movement of stars about the North Celestial Pole Star, known as Tatapn by the Mi’kmaq.

The story evolves in the sky and tells of Muin (the Mi’kmaq word for Black Bear), as she awakens from her winter sleep and, leaving her celestial den, descends to the ground in search of food. She is chased by the Seven Bird Hunters who pursue her through the spring and summer months, eventually killing her in the autumn and celebrating their success with a feast in winter. Muin’s life-spirit (wjijamijel) returns to her den in the sky to enter the body of a new bear who, in turn, wakes from her winter sleep, to once again descend to Earth and be pursued by the Hunters, and so the story continues eternally.

The complete animated story of Muin and the Seven Hunters can be found online. In a modern Eurocentric culture that is unfamiliar with stories as a primary way of understanding the world, tales like Muin and the Seven Hunters offer a way to connect with our natural environment and the cycles that govern it.
teaching, it may at first be difficult to grasp the immense richness within this story, wherein astronomical, cultural and ecological concepts are woven together to form the living knowledge that is transmitted in oral form from generation to generation. Many Indigenous/Aboriginal worldviews have, as a central pillar, the fundamental interconnectiveness and interdependence of everything (Archibald, 2008; Hender -

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The Stars in the Story

Figure 2. The names of the stars in the story in Mi’kmaq, Arabic and English.

Muin
Muinsuinek’

Jipjawejj
Jii’kes

Wow
Mikjaqoqwej

Ples
Tities

Ku ku kwes
Kupkwe’j

Muin

Alioth
Mizar
Alcor
Alkaid
Seginus
Izar
Arcturus
Mufrid

Black Bear
The Hunters

Robin
Chickadee
Cooking Pot
Grey Jay
Passenger Pigeon
Blue Jay
Barred Owl
Saw-whet Owl

Mi’kmaq

Arabic

English

Muin

Ntuksuinek’

Jipjawejj
Jii’kes

Wow
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Ples
Tities

Ku ku kwes
Kupkwe’j

Figure 2. The names of the stars in the story in Mi’kmaq, Arabic and English.
starts to address this last missing jigsaw piece. A children’s book of the story, written in Mi’kmaq and English, is currently being published and the DVD of the animated story is being widely taken up by schools within Unama’ki (Cape Breton). It has also been screened nationally in a number of settings, including the Canada Science and Technology Museum in Ottawa during the celebrations to herald the start of International Year of Astronomy 2009, and it was distributed to all delegates at CAP 2010 in Cape Town, South Africa. Yet Muin is about just one part of the night sky, and the Mi’kmaq people have many more rich stories for other parts of the night sky. The Mi’kmaq Elders who helped with the Muin project and IY2009 encourage other Aboriginal peoples across Canada to recon-nect with their night sky stories in the firm belief that it is essential for all Aboriginal children to feel connected to the night sky. Together, we also hope Muin can help awaken all people to the richness of Indigenous science stories around the world.

References

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Notes

1 Interconnectiveness: The dynamic of mindfully living within an expanding sense of holistic relationships with everything and everyone, i.e. “all my relations” or “all of Creation”.

2 Interdependability: The ability to mindfully live one’s responsibilities within a network of relationships.

3 Storywork: the lifelong journey of educating one’s heart, mind, body and spirit towards interconnec-tiveness and interdependence.


Biographies

The authors of this article are part of the integrative science team based at Cape Breton University in Sydney, Nova Scotia, Canada, including Prune Harris and Cheryl Bartlett who work at the university and Mi’kmaq Elders Murdena and Albert who live in the community of Eskasoni, in Cape Breton, Nova Scotia. They form a trans-disciplinary team that talks and walks together in a co-learning journey. All four are dedicated to sharing an ever-evolving understanding of Two-eyed Seeing for the benefit of humanity, all our relations and Mother Earth.