Introduction
Imagine a world where zoos encourage and support communities to save threatened native wildlife in their own backyards. With an innovative combination of engaging onsite and offsite initiatives, Zoos Victoria demonstrates this may be possible.

The Australian Government currently lists more than 1,700 species and ecological communities at risk of extinction (Aust. Govt, DSEWPC, 2010). Zoos Victoria (ZV) is addressing this crisis with its commitment to save 20 local species that without intervention would face extinction within ten years. Its mission is to galvanise communities to commit to the conservation of wildlife and wild places and achieve this by connecting people and wildlife.

Critical to the success of meeting this commitment is in ensuring the local Victorian community knows about these animals, cares for them and takes action on their behalf. With present knowledge and care for these species at very low rates amongst the Victorian public, the Love Your Locals (LYL) campaign provides a way to raise their profile. Addressing this challenge requires ZV to target a range of different audiences and test a range of educational and behaviour-change techniques.

Two case studies are outlined which illustrate new educational methods being trialled to meet this challenge. Case Study 1 focuses on engaging individuals who may never visit a zoo. The use of guerrilla-style techniques in the “Rob the Frog” initiative helped to educate and engage an immense audience in the Zoo’s work to save a local frog species. Case Study 2 focuses on how engagement and learning initiated as part of a zoo visit can drive the formation of “learning hubs” within the wider community. Schools undertaking programs linked to the LYL campaign go on to become expert advocates for one or more of the twenty local species.

Case Study 1 – “Rob the Frog”
Preliminary research amongst the Victorian community indicates very low levels of recall and recognition of the LYL campaign species (Pearson, 2016, pers. comm). A different approach is required to raise the profile of these animals and engage Victorians who rarely, if ever, visit any of ZV’s three zoos. The “Rob the Frog” activation was trialled on Valentine’s Day 2016 as a way to engage urban residents in the plight of the Southern Corroboree frog (Pseudophryne corroboree), educate them about the threats it faces and facilitate them to share its story through social media networks.

Methods
200 plush toy Southern Corroboree frogs with tags attached saying “HELLO my name is: ROB” were dropped at various city locations across Melbourne’s central business district from 8am on February 14th, 2016 (Figure 1). The toys were free gifts for members of the public who discovered them. ZV staff observed the toys at a distance until all were collected. The tags included a web address for a supporting webpage and animated video (created by Nigel Coan, and voiced by comedian Noel Fielding) (Figure 2), and requested those who found the frogs to upload photos of them onto social media, using the hashtag #robthefrog. Several high profile Victorians were also provided with frog toys and asked to upload photos onto social media platforms. The narrative and animation of “Rob the Frog” highlighted the threat of chytrid fungus to Southern Corroboree frogs in a comedic and anthropomorphic narrative: It illustrated the challenge ‘Rob’ has in trying to find love (i.e. a breeding partner), due to chytrid fungus. Valentine’s Day was selected as an appropriate date for the trial, due to the narrative links of ‘finding love’.

Figure 1. ‘Rob the Frog’ toy at National Gallery of Victoria and Flinders St Station, Melbourne. Images by Jacque O’Brien and Rick Hammond.
Results

Success of this initiative was measured by a number of elements:

- All 200 frog toys were claimed by members of the public across the 15 sites;
- Across Facebook, Twitter and Instagram, the images of ‘Rob the Frog’ reached 265,158 people;
- Coverage of the story on a major network’s prime time news reached an audience of 304,000 people;
- The “Rob the Frog” animation was viewed over 32,000 times in 24 hours;
- Over 175 photos were uploaded to public Instagram accounts using #robthefrog and included several high profile media personalities (Figure 3).

Case Study 2 – Community Learning Hubs

ZV developed a program to bring schools and community groups together in a community learning hub (CLH) to help fight extinction through an experience that involves ongoing exposure to conservation messaging. A CLH (Black, 2008) is a collaboration between school education systems and other sectors (community, business, local government and philanthropy) to support the learning and wellbeing of young people. How CLHs are developed depends on the unique context of the schools and community groups in question. (Figure 4).

The program was trialled at Werribee Open Range Zoo (WORZ) and involved 100 students aged 10-12 years from local schools, across three school terms beginning in May 2014. Students were invited to become Extinction Fighters and the focus species was the eastern barred bandicoot (EBB) (Perameles gunnii). The challenge for students was to educate their peers and wider community about the EBB, and to develop tangible, ongoing actions to address the threats it faces.
Their ideas and campaigns were presented to all CLH members on a Celebration Day at WORZ on September 10, 2014 (Figure 5), after which they shared their project and conservation campaign with their peers back at school, and implemented their respective campaigns within their community. Communication between hub members, including the schools, Wyndham City Council and WORZ was ongoing through a closed social media platform called NING. Using NING, subsequent school visits and follow-up activities, the aim was to encourage and support ongoing action to help ZV fight extinction.

**Methods**

Building upon the existing Connect – Understand – Act model (Lowry & Gray, 2009) that already underpins environmental education at ZV, we developed a Theory of Change (TOC) for the long-term LYL program to outline a pathway to achieve our vision and ultimately have impact (Figure 6 below).

The Effective Interpretation Program model (Orams, 1997) was used to inform the development of the five activity phases within the TOC. The five-phase experience was used to break down and examine the psychological perspective of the students at each point throughout the program. Education and behaviour change theories including Transformative Learning (Cranton, 1994), Multiple Intelligences (Gardner, 1999), Multi-sensory Learning (Christie, 2000), Inquiry based and Values-based learning (Edelson et al. 2010) informed the development and implementation of the program.

To measure and evaluate the LYL program across those schools, two online surveys were designed and implemented using the software tool PollDaddy. Questions were multiple choice and each answer required an open ended qualification which allowed assessment of the variability in experience and understanding, and the unique and individual actions taken by schools and students to protect local wildlife and habitats within their community.

**Results**

The overall objective of the surveys was to provide an indication of change (positive or negative) in participants over the course of their three-term experience, and if teachers would like a Community Learning Hub to become a permanent offering to their grades 4-6 students:

- 100% of students had taken action since presenting their campaigns at the WORZ ‘celebration’ day;
- Actions undertaken by students included: native grassland restoration; establishing cat curfews; website creation; art exhibits; and print media.
- 91% of students spread their conservation messaging to peers throughout their school and communities;
- 100% of schools wanted to continue being part of a CLH to fight extinction;
- 73% of teachers identified very strong links to curriculum needs, 27% identified strong links;
- 100% of students felt more connected to the program having their school name their own EBB;
- 100% of schools valued the ongoing interaction and updates from WORZ staff and other hub members (via online updates and school visits);
- 100% of schools would like to participate in the program again.

The observations, feedback and collation of qualitative data suggested establishing LYL Community Learning Hubs across all ZV zoos would be a valid step toward targeting the next generation of ‘change agents’. The results confirm that schools deemed the LYL program as highly valuable. It linked to curriculum needs, while encouraging life-long ambassadors for wildlife by participating in a repeat exposure experience to fight the extinction of the EBB alongside ZV and other community members.
Discussion
These complementary case studies utilize contrasting techniques to connect the widest possible audience to the same LYL campaign. One is characterised by its short-term approach of introducing individuals to a lesser-known local species, and the other, a longer-term, in-depth program utilizing CLH, as part of a TOC, to target behaviour change in students and alleviate threats to local wildlife.

Whilst initiatives like ‘Rob the Frog’ are short-lived and engagement may be seen as shallow, this trial indicated great promise with hundreds of thousands of Victorians engaging with and learning about a little known and barely recognised species – all within one day. Initiatives like this can be used to great effect to raise the profile of lesser-known species, and educate audiences less likely to engage with zoos, particularly when used at critical times. The high numbers of individuals engaged can be built upon and used by other LYL programs facilitating pro-conservation behaviours, by helping to establish a social norm and increase social diffusion of a campaign (McKenzie-Mohr, 2013), thereby increasing the success of subsequent behaviour change programs.

Further follow up is underway to determine whether this, along with the other LYL initiatives and programs, have a long-term effect on increasing recall of these species, care for them and ultimately pro-conservation behaviours being undertaken.

The CLH was designed to encourage students to fight the extinction of local wildlife (in this case the EBB) through collaboration between members with a shared purpose. The five-phase experience can be tailored specifically to the needs of each zoo’s strategy. In this case it galvanized communities to commit to wildlife conservation by reaching beyond the zoo and collaborating directly with local communities. Community groups came together to participate in conservation actions that benefitted local wildlife and the ongoing sustainability of the communities they share.

Conclusion
Changing human behaviour is notoriously difficult in an educational context (Johnson and McInnis, 2014). If the zoo community is to make a positive contribution to wildlife conservation, carefully designed education programs incorporating behaviour change strategies must be adopted. A handful of zoo studies that have been conducted demonstrate a potential link between education programs and behaviour change, indicating an education based zoo visit can improve visitor knowledge (Packer & Ballantyne, 2010; Esson & Moss, 2013; Dove & Byrne, 2014; Moss et al., 2014). However, knowledge increase is short lived, and without a framework within which to support and expand on the experience, its potential long-term benefits decay quickly (Johnson and McInnis, 2014).

Zoos have the potential to drive major change within their communities, and be advocates for lesser known species, but they need to continually measure the educational and behavioural impact of their programs and trial new ways to engage their onsite and offsite audiences. These two programs illustrate two complementary yet contrasting ways zoos can target varying audiences and help them engage with the same campaign.

Quirky and innovative stunts like “Rob the Frog” can measure their short-term impact but also need to be built into longer-term goals and targets so that they become part of a bigger whole. In the case of the LYL campaign, this stunt is one of several planned initiatives being undertaken by ZV, supported by ongoing research into levels of understanding and care toward these species. Similarly, the CLH TOC can be a blueprint for zoos globally to help save their native wildlife from extinction by targeting, empowering and supporting those students, schools and community groups most connected to specific local species and habitats. Based on the results of the trial, it is recommended that a long-term, dedicated research study be developed to prove that implementing this TOC in conservation-based zoo education programs can work to change the behaviour of student visitors and begin to address the decline of endangered native species.

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