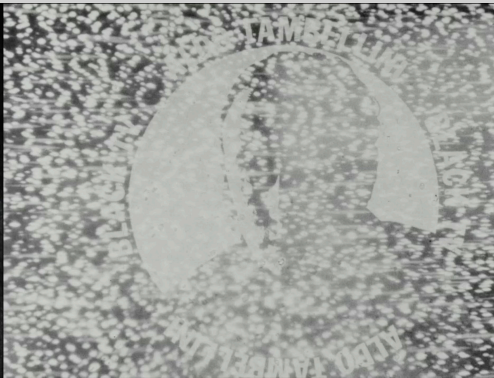


# Multiple Masters

Case Studies from the Tate Collection



Aldo Tambellini  
Black TV, 1969

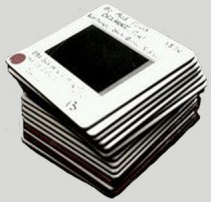


Tina Keane  
Faded Wallpaper, 1988



Ben Rivers  
Slow Action, 2010

## SOURCES



## ACCESS FORMAT

8mm > 16mm optical blow up >

16mm film capture from screen >

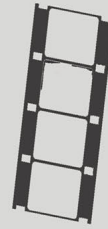
16mm film capture from screen >

Analogue video >  
telerecord/kinescope >

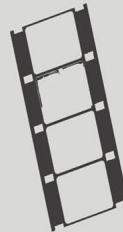
## EDITED MASTER



---->CUT



-->SPLICE

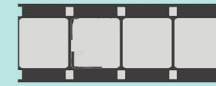


## Historic exhibition format



16mm - prints from master

## Conservation formats



16mm - fine grain positive/ interpositive  
- duplicate/internegative  
- answer/check/release prints



## Graded and cropped telecine to tape

- analogue or digital  
- SD or HD

## Digital conservation formats

- Raw uncropped ungraded scan to DPX or TIF sequence
- Graded & restored DPX or TIF + Wav Soundtrack
- DCDM\*

## Distribution/exhibition formats

- DCP
- Apple ProRes .mov
- MP4 on SD Card for media player

## ARTWORK

- The artwork is editioned

## MEDIA

- Format changes have been a part of film production for a long time.
- This aesthetic may be integral to the artwork
- The film artwork may be acquired as digital rather than analogue object

## COLLECTION

- The majority of TiBM artworks in the collection are not film-born

## DISPLAY

- Collection works are displayed for years at a time, 7 days per week

## HISTORY

- The full production history may be obscured or simply forgotten
- There may have been previous conservation
- A new “definitive” digital master may be offered in future

## CONSERVATION

- Many analogue preservation are obsolete
- Those remaining are increasingly expensive,
- There are decreasing opportunities for hands-on film handling experience
- The number of ways to scan a film, and the resolutions and bit depths, are still increasing,
- It may not be possible to have direct access to the master materials
- Analogue and digital archiving or
- Digital-only?

## ACCESS

- It may not be possible to have direct access to the master materials
- The lab may be overseas

## PLAN

- Check your reasoning
- Check your budget
- **Plan your workflow**
- **Check your budget**
- **Check your reasoning**

## So far so familiar

- Historically, this workflow is familiar
- Any generational loss within the production itself at levels accepted by the artists themselves as part of the process.
- The master reel(s) are clearly defined
- A clear preference for adherence to the currently available photochemical film archiving workflows is stated
- Digital archiving is permitted for future proofing
- This conservation is a relatively straightforward, albeit slow and expensive process

## But wait a minute...

- Is there the edited **master** negative or positive **accessible**?
- If not what is **available**?
- **How** is this accessible?
- Which **facilities** are available/preferred by the artist?
- What are the **display** specifications?
- Are there **multiple master formats**?
- If so, **which came first**?
- **Where are the intersections**?

(and the soundtracks?)

PRODUCTION

EDIT

16MM MASTER

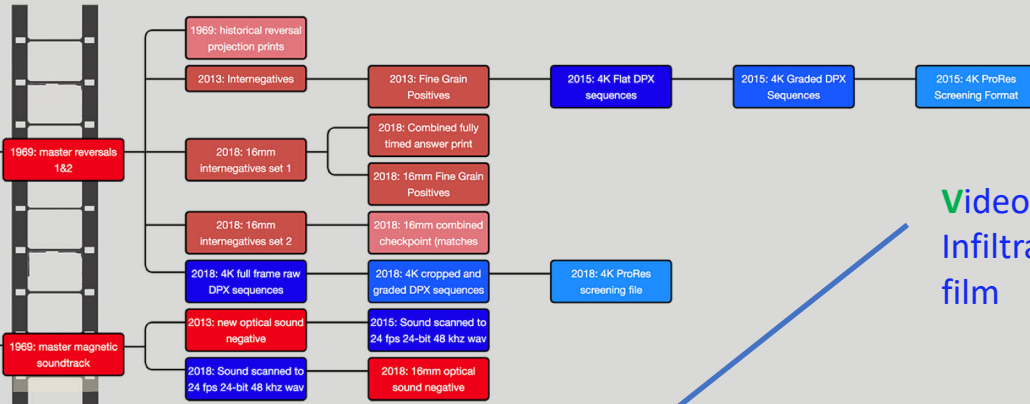
EXHIBITION & CONSERVATION

ALDO TAMBELLINI, BLACKTV, 1969

1/2" VIDEO ARTWORKS & TERRESTRIAL TV NEWS BROADCAST

16MM CAMERA USED TO FILM REVERSAL POSITIVE FROM TV SCREEN

Black TV, 1969. 16mm, b/w 2-channel, with sound, 10 minutes



Video Infiltrates film

TINA KEANE, FADED WALLPAPER, 1988

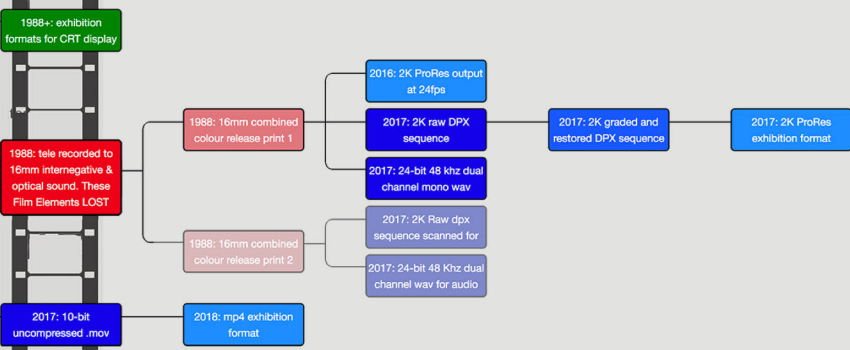
LIVE PERFORMANCES DOCUMENTATION 35MM SLIDES SUPER 8MM FILM

EFFECTS ADDED IN VIDEO MIXER

Faded Wallpaper, Umatic Lo-Band to 16mm, digitised. Colour, sound, 20 minutes

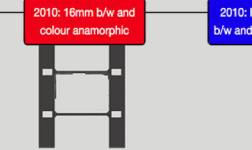
VIDEO MASTER

1988: Umatic Lo-Band master

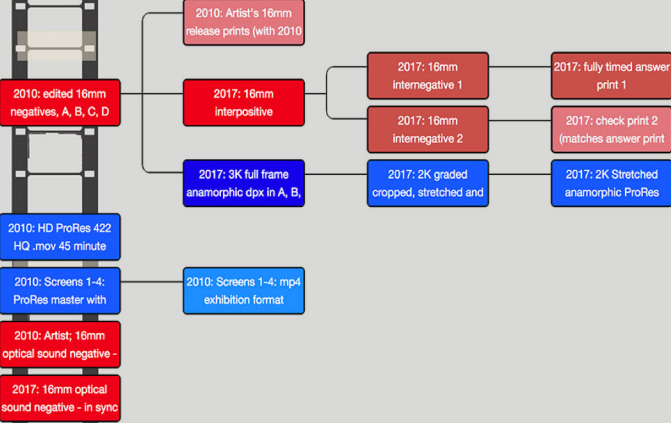


BEN RIVERS, SLOW ACTION, 2010

SLOW ACTION, 2010. Either 4 x 11 minute HD video or 16mm, colour, sound, 45 minutes



DIGITAL MASTERS



16mm Film Master Formats  
 16mm Film Exhibition Formats  
 Analogue Video Master Formats  
 Analogue Video Exhibition Formats  
 Digital Archival Master Formats  
 Digital Duplicating Master Formats  
 Digital Exhibition Formats

# Aldo Tambellini, Black TV, 1969 insert video

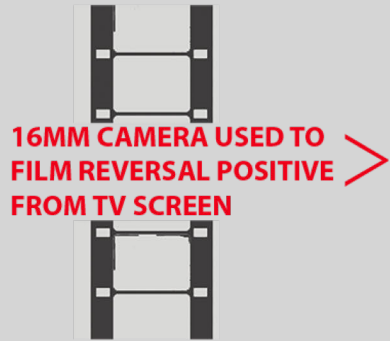
2-channel synchronized black & white 16mm film with sound, 10 minutes



ALDO TAMBELLINI  
BLACK TV, 1969

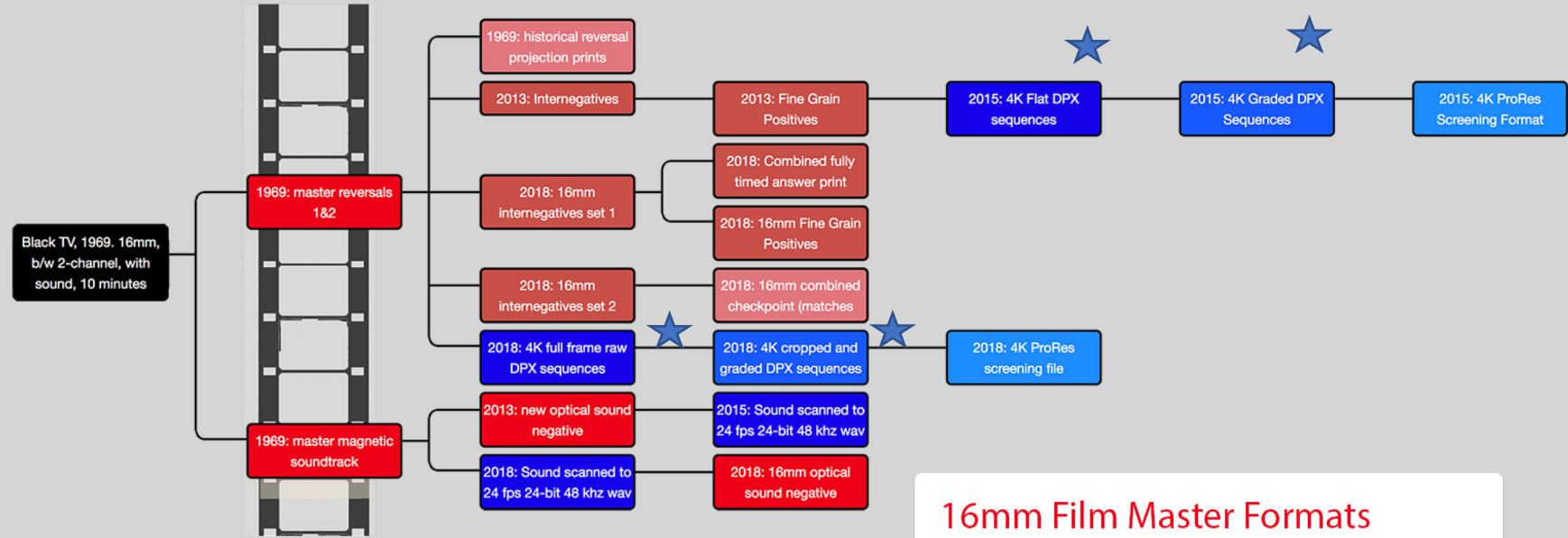
PRODUCTION & EDIT

1/2" VIDEO  
ARTWORKS  
&  
TERRESTRIAL  
TV NEWS BROADCAST



16mm MASTER

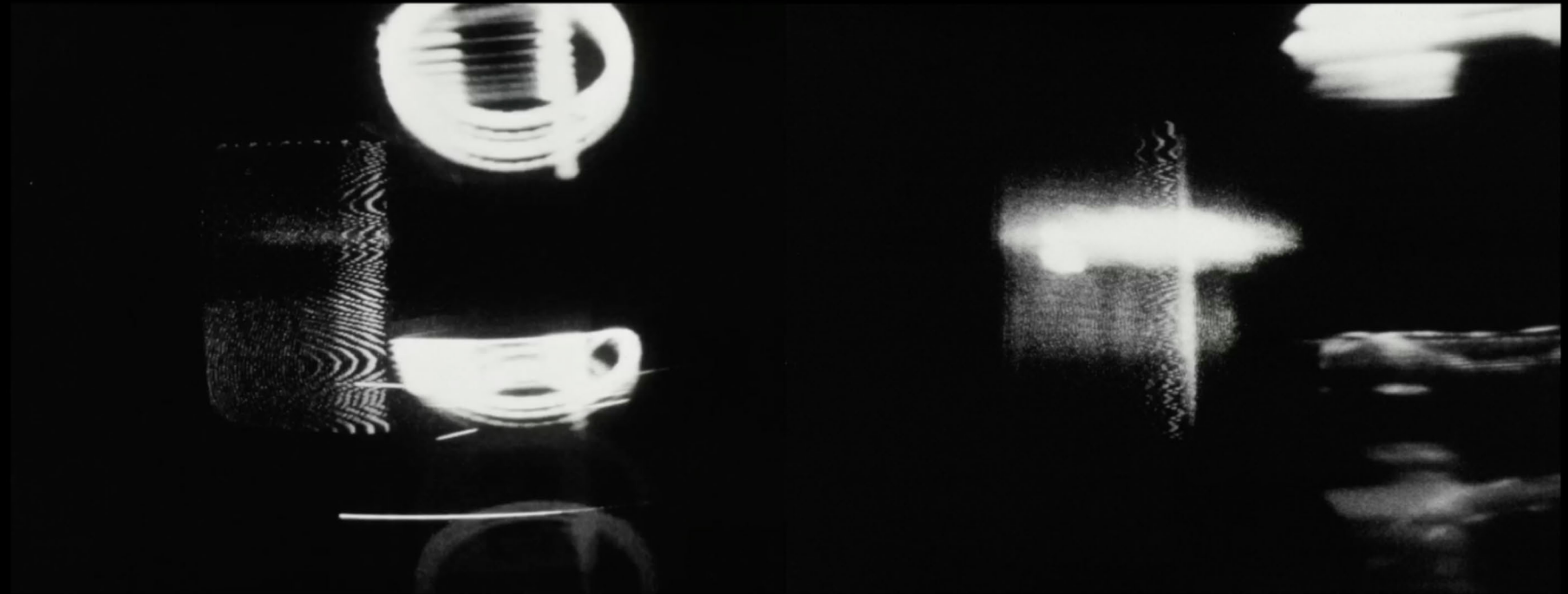
EXHIBITION & CONSERVATION



★ 4 (!) sets of 4K DPX

- 16mm Film Master Formats
- 16mm Film Exhibition Formats
- Analogue Video Master Formats
- Analogue Video Exhibition Formats
- Digital Archival Master Formats
- Digital Duplicating Master Formats
- Digital Exhibition Formats

Graded scan of  
Reversal master



Graded scan of  
fine grain master





# Assessing levels of detail via email Reversal (positive>positive) print vs positive>negative>positive process

“I'm attaching pictures of the newest print next to the reversal--the detail in the TV screens is being blown out of the reversal, so we're thinking we're going to make it about 2 points lighter, which will be subtle, but the whites should be closer to the Rev. while keeping the detail intact.

Our print is the one on the left, and the reversal print is on the right.”

- Laura Major, Colorlab (via email 2018)

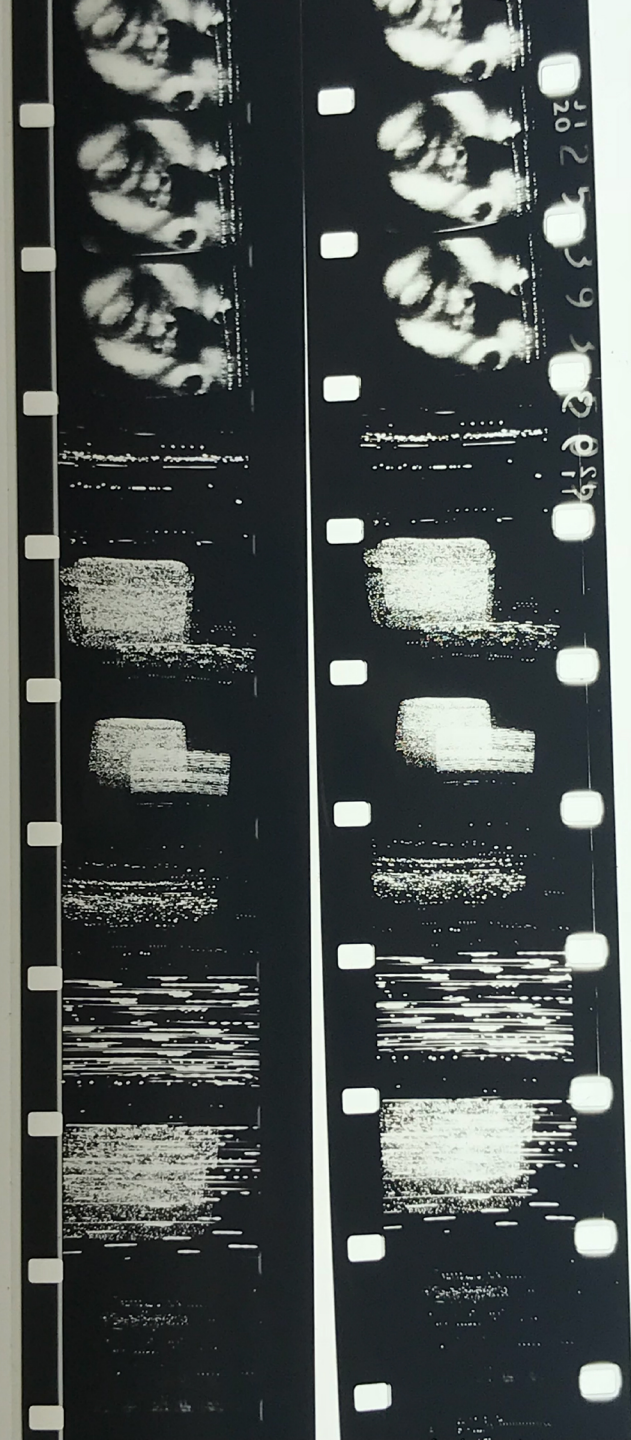
## 2018 Digital archiving:

Raw 4K DPX **1,500 GB**  
Graded 4K DPX **1,500 GB**  
Soundtrack **178 MB**

## Analogue:

4 x duplicate negatives  
4 x check prints  
2 x fine grain masters  
1 x optical sound negative

2018  
Answer  
Print



1969  
Reversal  
Print

Tina Keane

Faded Wallpaper, 1988

Single channel video, colour, sound, 20 minutes



Tina Keane  
Faded Wallpaper, 1988

**LOST**  
Tele-  
Recording  
To 16mm  
negative

Surviving  
16mm prints

Digital Archiving

Production

Edit



LIVE PERFORMANCES  
DOCUMENTATION  
35MM SLIDES  
SUPER 8MM FILM

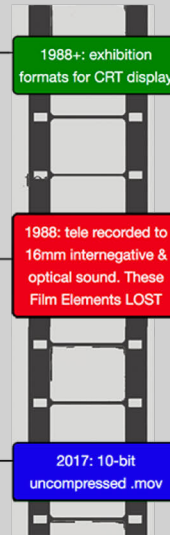
EFFECTS ADDED IN  
VIDEO MIXER

Faded Wallpaper,  
Umatic Lo-Band to  
16mm, digitised. Colour,  
sound, 20 minutes

Umatic  
Lo-band  
Master



1988: Umatic Lo-Band  
master



1988: 16mm combined  
colour release print 1

1988: 16mm combined  
colour release print 2

2018: mp4 exhibition  
format

2016: 2K ProRes output  
at 24fps

2017: 2K raw DPX  
sequence

2017: 24-bit 48 khz dual  
channel mono wav

2017: 2K Raw dpx  
sequence scanned for

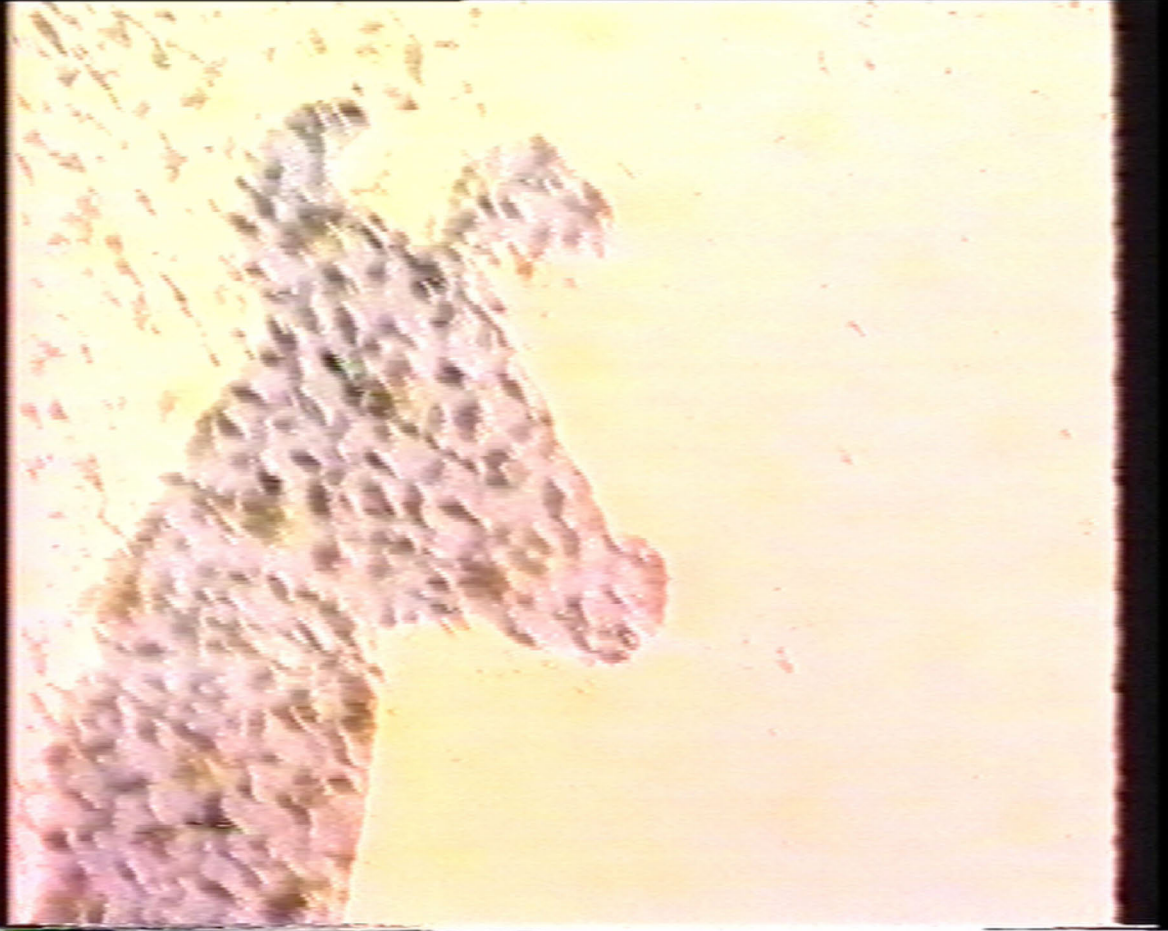
2017: 24-bit 48 Khz dual  
channel wav for audio

2017: 2K graded and  
restored DPX sequence

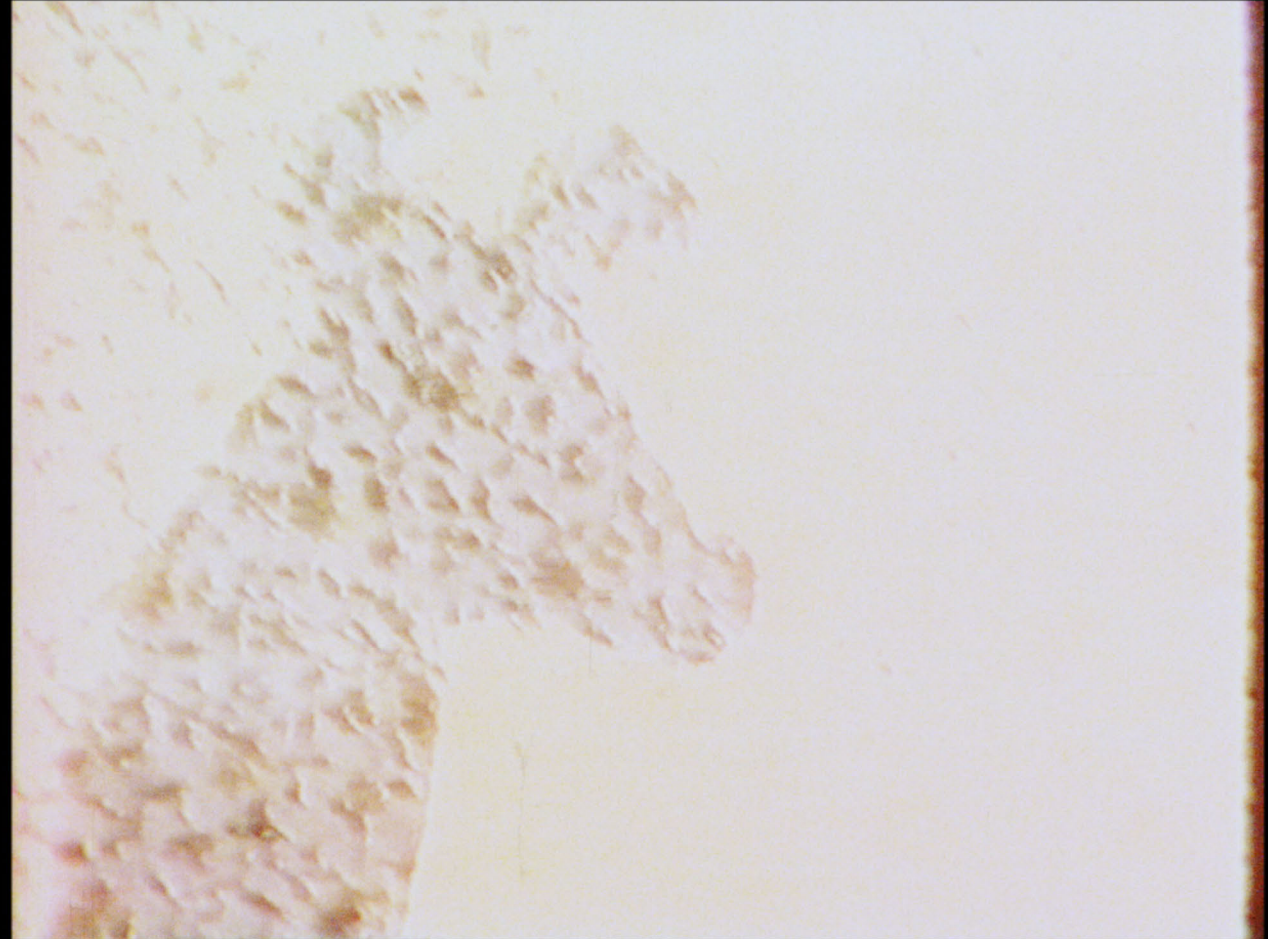
2017: 2K ProRes  
exhibition format

- 16mm Film Master Formats
- 16mm Film Exhibition Formats
- Analogue Video Master Formats
- Analogue Video Exhibition Formats
- Digital Archival Master Formats
- Digital Duplicating Master Formats
- Digital Exhibition Formats

Source: Umatic Lo-Band



Source: 16mm print



# 1988 in 2018

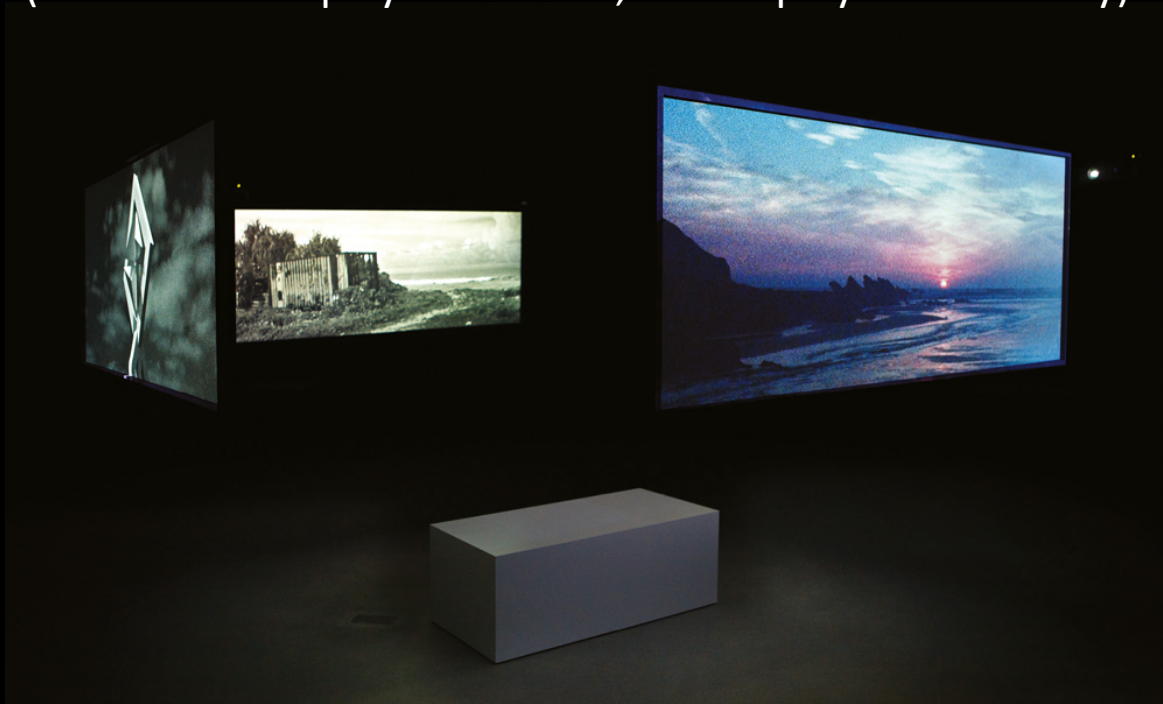


- Two versions of Faded Wallpaper were archived digitally.
- It was decided not to print the digital files back to film.
- The decision whether to project the video file or the digital film restoration is dependent on curatorial context.

# Ben Rivers

## Slow Action , 2010

4-channel synchronised HD video,  
colour, sound, 11 minutes  
(4 soundtracks play in rotation, videos play continuously)



Installation view, Doosan Gallery Seoul 2013

or Single channel 16mm film projection,  
colour, sound, 45 minutes  
(soundtrack via wireless headphones)



Film still

# Ben Rivers

## Slow Action, 2010

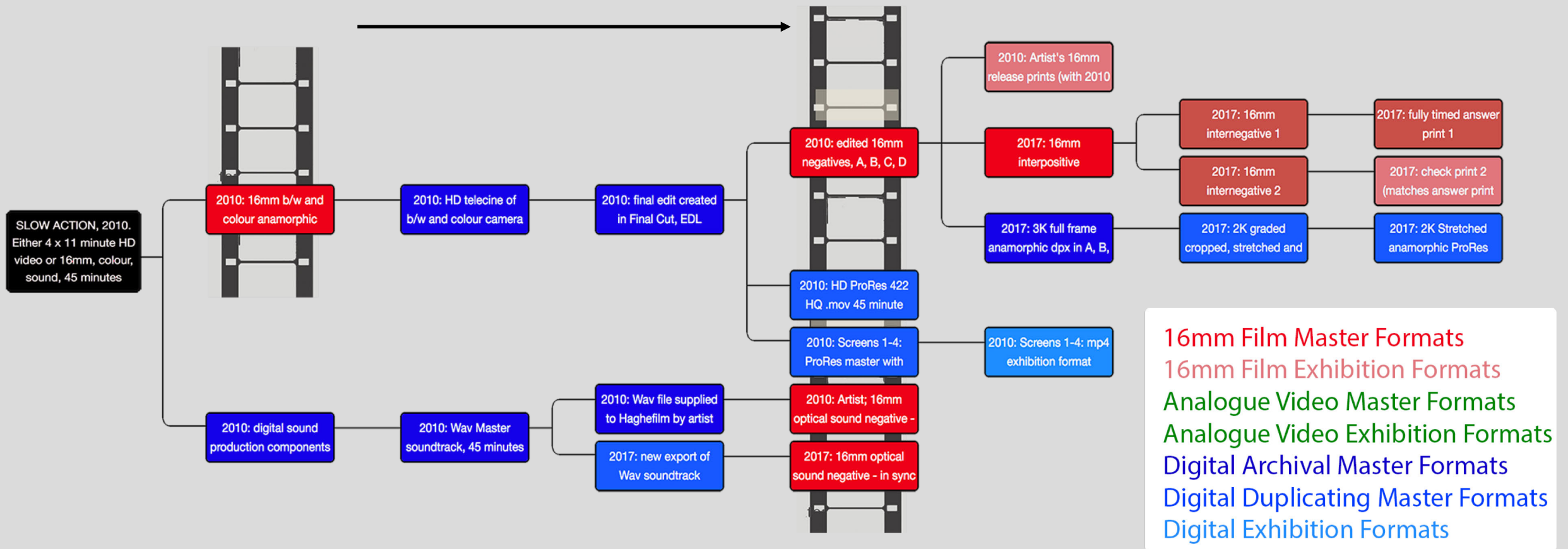
Single-channel 16mm film, colour, sound, 45 minutes

4-channel synchronised HD video, colour, sound, 11 minutes

### Production & Edit

### 16mm MASTER

### Exhibition & Conservation



# Definitely different

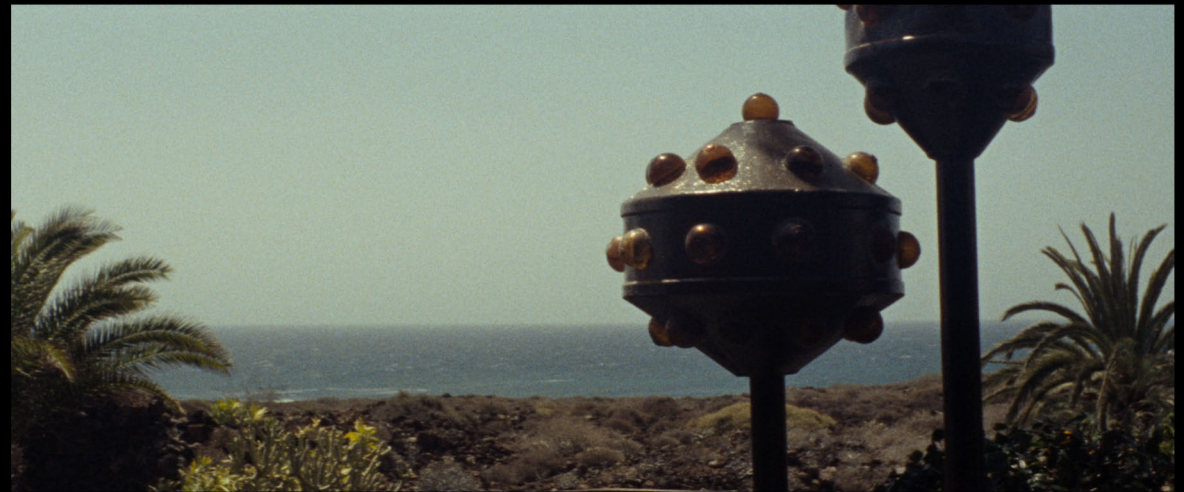
Telecine from camera negatives



Raw uncropped RBB 10-bit scan,  
2377 x 1782



Original HD telecine edited to 4-channel, 1920 x 1080  
letterboxed



Digital production proof from raw dpx, 2048 x 853



# Other differences:

**Slow Action contains both colour and black and white footage, but is printed entirely onto 16mm colour stock:**

- The camera negatives, and all digitisations of the negative, all have “true” black and whites.
- All 16mm components derived from the negatives have black and whites with a degree of tinting from the colour processing.

## **Introduction edit:**

- Ben re-edited the HD 4-screen intro sequences (black and white close ups of faces) after the 16mm sequence had been finalised differently.
- This difference was retained.

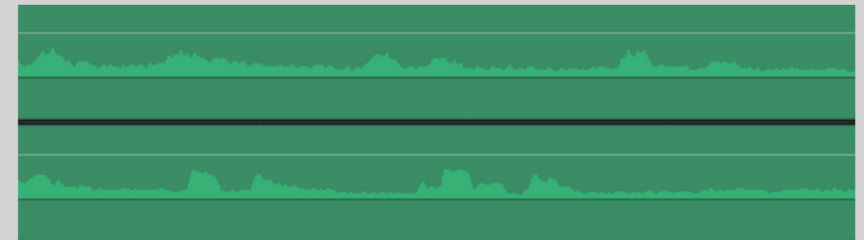
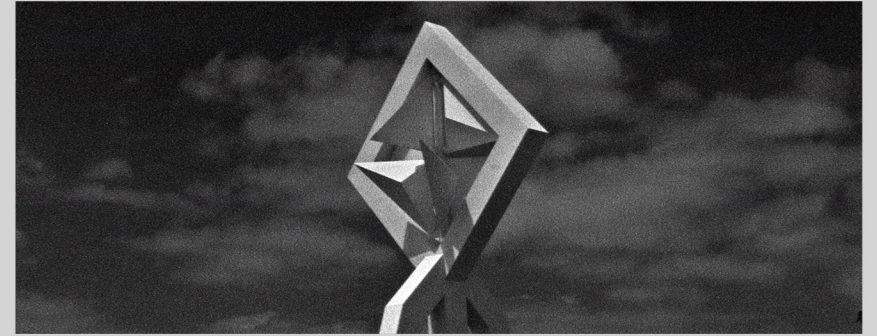
## **Audio:**

On Ben's own master sound negative it transpired that the the sound somehow drifted in and out of sync at certain points.

It was possible to strike a new optical sound negative from the wav audio with correct sync

## **Cinema Future:**

Ben is considering 35mm Cinevator prints to safeguard analogue projection



# Thank you!

## Now Showing:

- Ben Rivers: Sonic Terrains, Starr Cinema, 27 October 19.00h
- Tina Keane: Visions in the Nunnery, The Nunnery Gallery, Bow, until 28 October
- Aldo Tambellini: Tate Modern Level 4 Solo Display until 2019

## Images:

Courtesy Tate and the artists

## Diagrams based on:

<https://dnainter.com/tools/probability>

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